MATHEMATICS 7

DATA
MANAGEMENT

MODULE 7

LEARNING FACILITATOR'S MANUAL
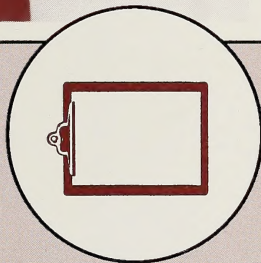
Alberta EDUCATION

Distance Learning

Mathematics 7

Module 7: Data Management

LEARNING FACILITATOR'S MANUAL

Note

This Mathematics Learning Facilitator's Manual contains answers to teacher-assessed assignments and the final test; therefore, it should be kept secure by the teacher. Students should not have access to these assignments or the final tests until they are assigned in a supervised situation. The answers should be stored securely by the teacher at all times.

CONTENTS

MODULE INTRODUCTION

What Lies Ahead

In the Module Introduction the student will preview the module components and discover how the module will be evaluated.

The student will also learn why data management is important.

Gathering Materials

For the Module Introduction the student will need the following item.

> Mathematics 7
>
> Module 7
>
> *Data Management*
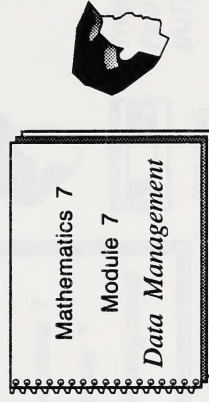
Put away the Assignment Booklet for Module 7 in a secure place until it is needed.

Tell the student where the video and computer disks are stored.

Guiding the Student

- Have the student read the Welcome and encourage the student to listen to the companion audiocassette.

- Have the student preview the Module Booklet and read the Module Introduction.

- The teacher on the tape will help guide the student. If you and the student choose not to use the audiocassette, you will have to guide the student yourself.

- Next discuss the learning process time management and evaluation with the student. (See the suggestions on the next page of this booklet.)

The Learning Process

Each section of Module 7 deals with a different skill involving data management.

Sections have several activities.

- Introductory Activities
- Practice Activities
- Extra Practice
- Concluding Activities

Remind the student that he/she will not be expected to do all the activities. You will help him/her decide what to do.

Time Management

Decide how long the student will need to complete the module. (The average student should spend about 4 weeks or 10 hours to complete the module. It is recommended that students spend no more than 1 hour at a time doing mathematics.)

Evaluation

Explain that the grade on Module 7 is based on work in the assignment booklet. The module booklet will help prepare the student for the assignment booklet.

GETTING SET

What Lies Ahead

In this section the student will test these skills.

- calculating averages
- keeping tallies and to make frequency tables
- constructing and interpreting pictographs, bar graphs, line graphs and circle graphs
- choosing the most appropriate graph

Gathering Materials

The student will need these items for this section.

Mathematics 7
Module 7
Data Management
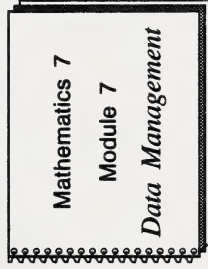
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THINKABOUT:
Find Your Guide
(AIT)
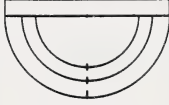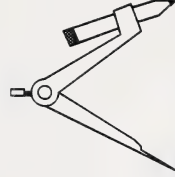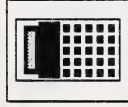
Guiding the Student

- Have the student turn to Section 1 in the Module Booklet, and read the "What Lies Ahead" box and the introductory paragraphs of "Working Together". Next, have the student view the video or read the notes.

- Have the student complete the pretest.
- Afterwards help the student check the answers. It may not be necessary for the student to correct any errors. See the page at the end of this section for further directions.

Pretest

Suggested Answers

1. Caroline and Shauna looked over job-offers for students for summer employment. Use the chart at the right to answer the following questions.

Job	Pay Per Hour
Pool Attendant	$4.95
Gas Pump Attendant	$3.75
Waiter/Waitress	$4.00
Child Care Worker	$4.75
Rock Picker	$5.00
General Farm Worker	$4.80
Grass Cutter (for city parks)	$5.00
Office Worker (typing, filing)	$5.25
Cashier	$4.75
Babysitter	$2.00

WESTFILE INC.

a. What is the lowest and highest rate of pay?

b. What is the average rate of pay for the above jobs?

1. a. 2.00/h lowest
      5.25/h highest

   b. $\dfrac{44.20}{10}$ = **$4.42**

2. The students in grade 7C were asked how many teeth fillings they had during their lifetimes.
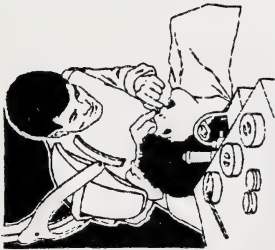
They responded as follows.

3, 4, 5, 8, 2, 0, 6, 7, 4, 4, 8, 6,
1, 1, 4, 6, 3, 5, 7, 4, 1, 2, 3, 0,
0, 2, 5, 6, 2, 1, 0, 4, 3

Complete the tally chart and find the frequency for each number of fillings.

Number of Fillings	Tally	Frequency
0	IIII	4
1		
2		
3		
4		
5		
6		
7		
8		

2.

Number of Fillings	Tally	Frequency
0	IIII	4
1	IIII	4
2	IIII	4
3	IIII	4
4	IIII I	6
5	II	2
6	IIII	4
7	II	2
8	II	2

3. Super Charge Vehicles Ltd. are predicting their sales of electric cars. The first automobile will be a 4-seater Hummalong. With its large battery it is expected to go 250 km before the battery would need to be recharged. Recharging should only take 1½ hours. The predicted sales are displayed in this graph. Study this graph. Then answer the following questions.

Predicted Sales of Cars

Legend: Each ![car] represents 50 cars

a. How many cars would be presented by ![car]?

b. In which year should the production be over 300 vehicles?

c. If the car sells for $16 000, how much would the company expect to earn in 1995?

3. a. 25 cars

    b. 1996

    c. $4 800 000

4. Study this graph. Then answer the following questions.

Main Languages Spoken in the World (1987)

Languages: English, French, German, Hindustani, Japanese, Chinese, Spanish, Russian

Number of People (in millions): 0 100 200 300 400 500 600 700 800 900 1000
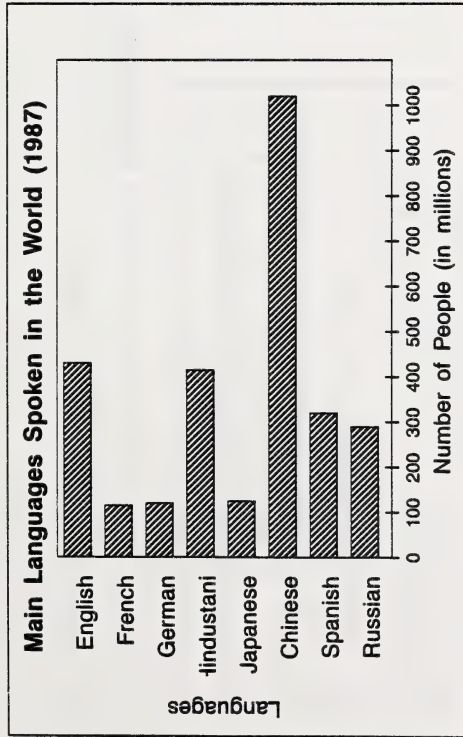
a. Which language is spoken by the greatest number of people?

b. About how many people speak English?

c. About how many people speak French?

4. a. Chinese

b. 430 000 000

c. 120 000 000

5. Study the graph below. Then answer the following questions.

Amount of Gasoline in an Automobile During a Day

Amount of Gasoline in Litres

Time

6 a.m. 7 a.m. 8 a.m. 9 a.m. 10 a.m. 11 a.m. 12 p.m. 1 p.m. 2 p.m. 3 p.m. 4 p.m. 5 p.m. 6 p.m.

0 5 10 15 20 25 30 35 40 45 50
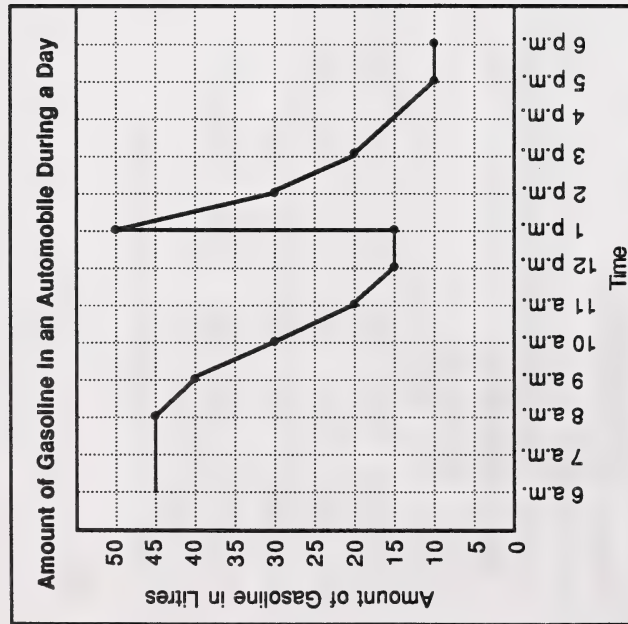
a. When did the driver of the car leave home?

b. When did the driver eat lunch?

c. When did the driver arrive home?

d. What do you think the driver does for a living? Why?

e. When did the driver fill up the gas tank?

f. How much gas did the driver purchase?

g. What is the capacity of the tank?

h. How much gas is left in the tank at 6 p.m.?

5. a. 8:00

b. 12:00 p.m. – 1:00 p.m.

c. 5:00 p.m.

d. Taxi driver or salesperson. The driver is driving most of the day.

e. 1:00 p.m.

f. 35 L

g. 50 L

h. 10 L

6. Study these graphs. Then answer the following questions.

1951 Population 14 009 000[1]

Quebec 29%

Ontario 33%

Maritimes 12%

BC 8%

Prairies 18%

Yukon and Northwest Territories

1986 Population 25 354 000[2]

Maritimes 9%

BC 11%

Quebec 26%

Ontario 36%

Prairies 18%

Yukon and Northwest Territories
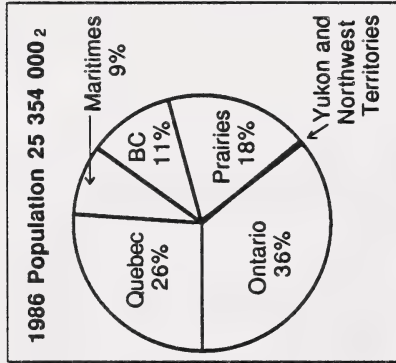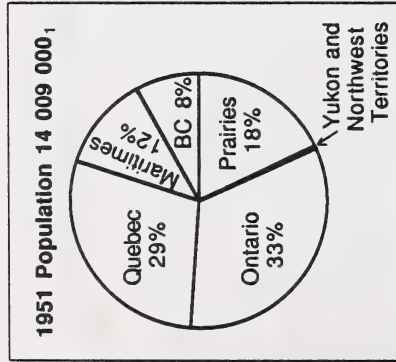
Note

The Yukon and Northwest Territories are included as lines on these graphs because their population is less than 1% of the total population of Canada.

[1,2]Statistics Canada.

a. In what regions of the country did the percentage of population increase from 1951 to 1986?

b. What was the total population of Canada?

    (i) in 1951

    (ii) in 1986

c. Calculate the population of the Prairies.

    (i) in 1951

    (ii) in 1986

6. a. The population increased in British Columbia and in Ontario from 1951 to 1986.

  b. (i) In 1951 the population of Canada was 14 009 000.

     (ii) In 1986 the population of Canada was 25 354 000.

  c. (i) In 1951 the population of the Prairies was

       18% of 14 009 000
       = 0.18 × 14 009 000
       = 2 521 620

     (ii) In 1986 the population of the Prairies was

       18% of 25 354 000
       = 0.18 × 25 354 000
       = 4 563 720

7. Make a pictograph to represent this data.[1]

Automobiles Registered in Canada in 1986	
Newfoundland	176 000
Nova Scotia	337 000
Prince Edward Island	56 000
New Brunswick	286 000
Quebec	2 614 000
Ontario	4 244 000
Manitoba	527 000
Saskatchewan	389 000
Alberta	1 296 000
British Columbia	1 527 000
Territories	25 000

7. **The Number of Automobiles Registered in Canada for 1986**

Newfoundland	o c
Nova Scotia	c
Prince Edward Island	ooo c
New Brunswick	oo c
Quebec	ooooo ooooo ooooo ooooo ooooo oc
Ontario	ooooo ooooo ooooo ooooo ooooo ooooo ooooo ooooo ooc
Manitoba	ooooo c
Saskatchewan	ooo c
Alberta	ooooo ooooo ooc
British Columbia	ooooo ooooo ooooo c
Territories	c
Legend: 1 circle = 100 000 cars	

8. Make a bar graph to represent this data.[1]

The Longest Rivers in Canada

River	Length
Mackenzie	4 241 km
Yukon	3 185 km
St. Lawrence	3 058 km
Nelson	2 575 km
Columbia	2 000 km
Saskatchewan	1 939 km
Peace	1 923 km
Churchill	1 609 km
South Saskatchewan	1 392 km
Fraser	1 370 km
North Saskatchewan	1 287 km
Ottawa	1 271 km

8.
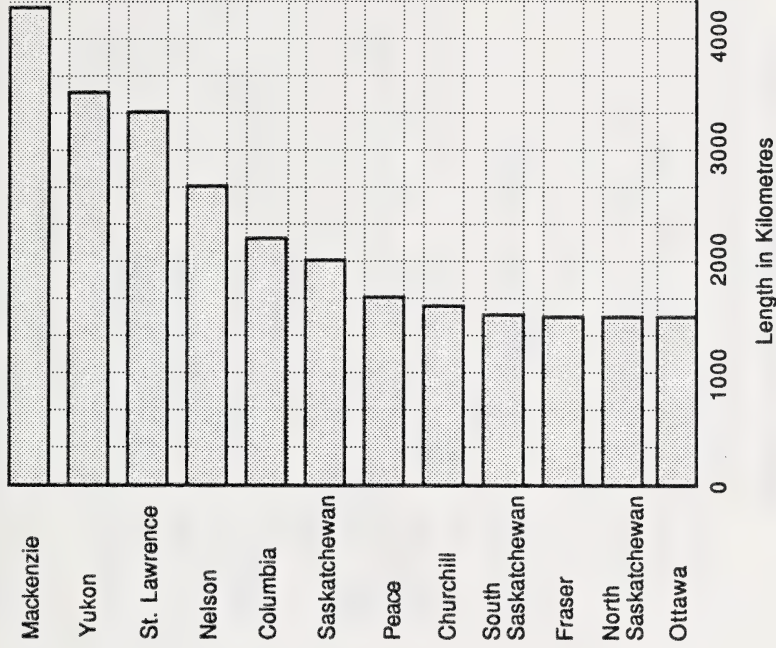
The Longest Rivers in Canada

9. Teresa's parents kept a baby book and recorded her height at birth and on every birthday.

Teresa's Growth

Age (a)	birth	1	2	3	4	5	6	7	8	9	10
Height (cm)	51	76	86	94	101	104	115	119	130	135	141

Make a line graph to display this data.

Note

The metric symbol for years is a.

9.

Teresa's Growth Over Her First 10 Years
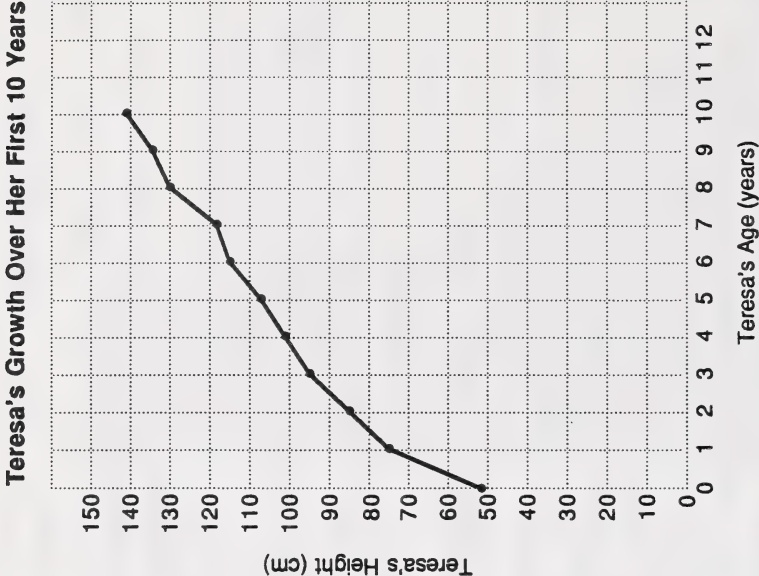
10. Make a circle graph to display this data.

Money Raised by Student Council	
Student Cards	12 000
Canteen	6 000
Dances	2 000
Athletics	10 000
Fund raiser	10 000
Total	40 000

10. Calculations.

Total   12 000 + 6 000 + 3 000 + 10 000 + 9 000 = 40 000

Student Cards   12 000 ÷ 40 000 = 0.3 = 30%
                30% of 360°
                = 0.3 × 360
                = 108°

Canteen   6 000 ÷ 40 000 = 0.15 = 15%
          15% of 360°
          = 0.15 × 360
          = 54°

Dances   2 000 ÷ 40 000 = 0.05 = 5%
         5% of 360°
         = 0.05 × 360
         = 18°

Fund Raisers/   10 000 ÷ 40 000 = 0.25 = 25%
Athletics   25% of 360°
                = 0.25 × 360
                = 90°

Student Council Income
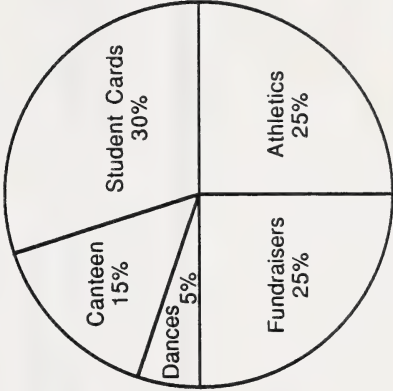
11. What graph would you use to display the following.

a. the change in the price of an average single-family
    house during the years 1980 to 1990

b. the different ways an average family spends its yearly
    income in 1990

c. the amount of garbage disposed of in major cities in
    Canada in 1990

d. the number of students in school districts in Alberta in
    1990

11. a. line graph

b. circle graph

c. pictograph or bar graph

d. pictograph or bar graph

Guiding the Student

After checking the answers, compare the student's results in the Pretest and the section in which the skill will be taught. (The chart lists the skills covered with the following chart.)

Question	Skill	Section
1	Calculating averages	2
2	Keeping tallies and frequency charts	3
3	Interpreting pictographs	4
4	Interpreting bar graphs	5
5	Interpreting line graphs	6
6	Interpreting circle graphs	7
7	Constructing pictographs	4
8	Constructing bar graphs	5
9	Constructing line graphs	6
10	Constructing circle graphs	7
11	Choosing the most appropriate graph	8

Help the student to decide what to do next. It is recommended that the student does most of the sections which correspond to the questions with which experienced difficulties and only the concluding activities in sections which correspond to the questions with which the student experienced success.

AVERAGES

What Lies Ahead

In this section the student will learn about

- the meaning of average

- the importance of averages

- how to calculate averages

Gathering Materials

The student will need these items for this section.

Mathematics 7
Module 7
Data Management
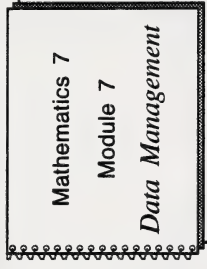
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Guiding the Student

- Have the student turn to Section 2 in the Module Booklet and read the "What Lies Ahead" box and the introductory paragraphs of "Working Together". Next, have the student view the video or read the notes.

- Then have the student do the Practice Activities.
- Afterwards help the student check the answers and correct any errors. (Suggested answers are on the next page of the booklet.)

Practice Activities

1. Here are Lisa's marks for all her projects and tests. (They are all out of 100.)

Marks										
1st term	62	51	64	73	47	43	84	50	60	40
2nd term	45	70	83	90	64	80	65	52	50	80

a. Calculate her average for 1st term.

b. Calculate her average for 2nd term.

c. Did her average go up or down from the first to the second term?

d. If her final mark was based on all 20 marks, what would her final mark be?

Suggested Answers

1. a. (62 + 51 + 64 + 73 + 47 + 43 + 80 + 50 + 60 + 40) ÷ 10

   = 570 ÷ 10
   = 57

b. (45 + 70 + 83 + 90 + 64 + 80 + 65 + 53 + 50 + 80) ÷ 10

   = 680 ÷ 10
   = 68

c. Her average went up.

d. (57 + 68) ÷ 2

   = 125 ÷ 2
   = 62.5

2. Michael Vroom was buying a new Canuck Compact car.
He shopped around and got the cost from several car
dealerships. All the cars came with the same equipment.

Dealers	Cost
Northern Fast-track Ltd.	$8 975
Chevi Nicki Auto Sales Ltd.	$8 265
Western Plains Sales Ltd.	$9 420
Ted Blonkers Auto Sales Inc.	$7 999
Denny André Sales Inc.	$8 366
Benny's Best Cars Ltd.	$7 968
East Town Car Dealers Ltd.	$7 999

a. What is the average cost of a Canuck compact car?

b. Should Michael have an interest in knowing the
average price of a car? Why or why not?

2. a. $(8\,975 + 8\,265 + 9\,420 + 7\,999 + 8\,366 + 7\,968 + 7\,999) \div 7$

   $= 58\,992 \div 7$

   $= 8\,427.43$

b. No, Michael should be interested in the lowest price.

3. Angela thought that Junior High students watched more television than Elementary students. She did some research and asked students how many hours of television they watch per week-nights.

- The responses from the Elementary students were as follows:

  0, 2, 4, 3, 2, 0, 0, 4, 3, 1, 1, 1, 4, 3, 0

- The responses from the Junior High students were as follows:

  3, 2, 3, 4, 0, 1, 1, 4, 6, 0, 0, 4, 3, 1, 0, 1

a. Find the average hours of television watched by both groups.
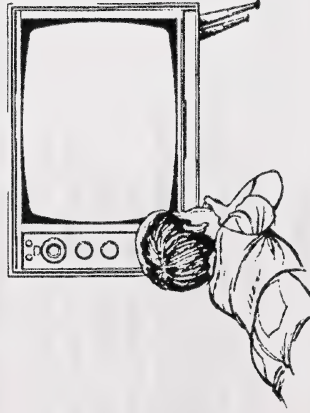
b. Which group watches more television?

3. a. Elementary

$(0 + 2 + 4 + 3 + 2 + 0 + 0 + 4 + 3 + 1 + 1 + 1 + 4 + 3 + 0) \div 15$

= 32 ÷ 15
= 2.1 hours

Junior High

$(3 + 2 + 3 + 4 + 0 + 11 + 4 + 6 + 0 + 0 + 4 + 3 + 1 + 0 + 1) \div 15$

= 42 ÷ 15
= 2.8 hours

b. Junior High group watches more television.

4. Bill Lastiwka and Mike Naidu are goaltenders for the Bear Creek Bruins. Both players have played 10 games. You have the following data.

Goals Allowed Per Game										
Bill Lastiwka	4	2	3	2	7	0	4	9	6	3
Mike Naidu	8	2	4	1	2	3	6	6	0	1

a. Find the average number of goals that Bill Lastiwka and Mike Naidu lets into his net.

b. Which goalie has the better average? Explain.

4. a. Bill Lastiwka

$(4 + 2 + 3 + 2 + 7 + 0 + 4 + 9 + 6 + 3) \div 10$

$= 40 \div 10$

$= 4$

Mike Naidu

$(8 + 2 + 4 + 1 + 2 + 3 + 6 + 6 + 0 + 1) \div 10$

$= 33 \div 10$

$= 3.3$

b. Mike Naidu has the better average as he lets less goals into the net.

5. The average income for auto mechanics at several garages are given in the chart at the right.
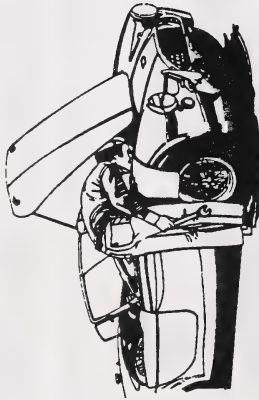
Garages	Salary
Northern Fast Track Ltd.	$27 400
Chevi Nicki Auto Sales	$26 800
Western Plains Sales	$26 700
Ted Blonkers Auto Sales	$24 900
Denny André Sales	$31 200
Benny's Best Cars Ltd.	$30 400
East Town Car Dealers	$24 700
Auto City Sales	$25 400
Astros Auto Sales	$26 200
Southern Car Dealer	$22 500

a. Find the average income of an auto mechanic from the above information.

b. Which garage pays more than the average?

5. a. $(27\,400 + 26\,800 + 26\,700 + 24\,900 + 31\,200 + 30\,400 + 24\,700 + 25\,400 + 26\,200) \div 10$

    $= 267\,200 \div 10$
    $= 26\,720$

The average income is 26 720.

b. Northern Fast Track, Chevi Nicki Auto Sales, Denny André Sales and Benny's Best Cars Ltd. pay more than the average.

Guiding the Student

• Have the student do the Concluding Activities.

• Afterwards help the student check the answers and correct any errors. Suggested answers are on the next page of this booklet.

Concluding Activities

1. Mrs. Mudryk is retired, but she is studying anthropology by distance education. She has one more test to write before she completes the course. In order to pass she must get an overall average of 50. Altogether she has to take 8 tests. In the first 7 tests she has the following (all marks are out of 100).

Test	1	2	3	4	5	6	7	8
Marks	55	45	40	50	50	70	60	—

a. If she gets 50 on the final test, will she pass the course? (Show your calculations.)

b. If she gets 75 on the final test, will she pass the course? (Work out her average mark assuming she did get 75%.)

Suggested Answers

1. a. (50 + 42 + 40 + 50 + 40 + 60 + 55) ÷ 8

   = 387 ÷ 8
   = 48.3 or 48

   No. Her average will be less than 50.

   b. (55 + 42 + 40 + 50 + 40 + 60 + 75) ÷ 8

   = 412 ÷ 8
   = 51.5 or 52

   Yes. Her average will be greater than 50.

c. What is the lowest mark she can get on the final test and still pass the course? (Show your calculations.)

c. The smallest possible total

50 × 8 = 400

Mrs. Mudryk's total

55 + 42 + 40 + 50 + 50 + 40 + 60 = 337

The difference

400 − 337 = 63

The lowest mark she can make on the final test and still pass is 63.

2. Mr. Hallowaychuck is transporting 27 hogs. He estimates the average weight of the hogs to be 90 kg.

a. If he can get $1.20 per kg, how much does he expect to get for his shipment of hogs?

2. a. Estimated total weight

27 × 90 = 2 430 kg

Estimated selling price

2 430 × $1.20 = $2 916.00

b. The hogs actually weighed 2 501.2 kg. How much did
    Mr. Hallowaychuck actually receive?

b. Actual selling price

    $2\,501.2 \times \$1.20 = \$3\,001.44$

TALLIES AND FREQUENCY TABLES

What Lies Ahead

In this section the student will learn these skills.

- making tallies
- making frequency tables

Gathering Materials

The student will need these items for this section.

Mathematics 7
Module 7
Data Management
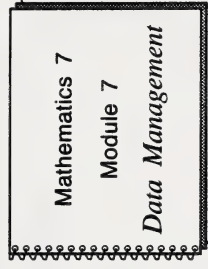
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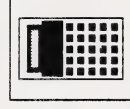
Guiding the Student

- Have the student turn to Section 3 in the Module Booklet, and read the "What Lies Ahead" box and the introductory paragraphs of "Working Together".
- Next, have the student view the video or read the notes.

- Then have the student do the Practice Activities.
- Afterwards help the student check the answers and correct any errors. (Suggested answers are on the next page of the booklet.)

Introductory Activities

1. Write the number that these tallies represent.

a. ||| f. |||| |||| |||| |||| ||||

b. |||| ||| g. ||

c. |||| |||| || h. ||||

d. |||| |||| |||| |||| i. |||| |||| |||| |||| ||||

e. |||| |||| |||| j. |||| |||| |||| |||| |||| ||

2. Write down how you would record each number as a tally.

a. 10

b. 22

c. 34

d. 13

e. 25

Suggested Answers

1. a. 3   f. 25

   b. 8   g. 2

   c. 12   h. 3

   d. 19   i. 30

   e. 15   j. 32

2. a. |||| ||||

   b. |||| |||| |||| |||| ||

   c. |||| |||| |||| |||| |||| |||| ||||

   d. |||| |||| |||

   e. |||| |||| |||| |||| ||||

3. Betty Hindman and Arthur Clark wanted to find out which types of automobiles were the most popular in Vancouver. Both students went to busy spots and kept a tally of the cars they saw over a 15 minute period. The results are shown below.

Make of Auto	Arthur Clark's Results	Betty Hindman's Results
Honda	卌 I	||
Nissan	卌 卌 卌	卌 卌 卌 卌 I
Mazda	||	
Ford	卌 卌 卌 ||	卌 卌 卌 卌 ||||
General Motors	卌 卌 卌 |||	卌 卌 卌 ||
Chrysler	卌 卌 |||	卌 |||
Others	卌 ||	卌

a. Which kind of automobile was seen most by Arthur?

b. Which kind of automobile was seen most by Betty?

3. a. General Motors

   b. Ford

c.   Which kind of automobile was seen least by Arthur?   c.   Mazda

d.   Which kind of automobile was seen least by Betty?   d.   Mazda

Guiding the Student

• Have the student read the notes on Frequency Tables and do the Practice Activities.

• Afterwards help the student check the answers and correct any errors. Suggested answers are on the next page of this booklet.

Practice Activities

1. Below is the Sports, Racing Car section from the Classified section of a newspaper. Use the information in the advertisements to complete the frequency table at the right.

Sports, Racing Cars & Parts   980

1986 CORVETTE, racing red, loaded. 555-3311.

1976 TR6, maroon, all work done, A-one cond. $9 000. 555-1350

1989 NISSAN 240 SX, 5 spd., racing red, only 9 500 kms. $17 900. 555-9970.

1989 MUSTANG, 16 valve engine, 5 spd., low kms. $17 900. 555-9970.

1973 PORSCHE 911E Targa, one owner, $12 900. 555-8868 or 555-7464.

1987 JAGUAR Soverign, fully loaded, immaculate cond., 1 owner. Serious enq. only. 555-3808 or 555-7128.

CONVERTIBLE '83 Mustang GLX 5.0L, 4 spd., silver, red interior. Well maint'd. $10 900. 555-2219 evg's.

1988 Pontiac Grand Prix SE, fully loaded, upgraded stereo, pwr. seats, windows & locks. Fuel injected. Only 30 000 kms. $17 500. 555-6482.

1981 Jaguar XJ6, black, 70 000 mi, exc. cond., $19 800 obo. 555-4650.

1977 MGB Mark IV, gold, engine & drive train exc. $2 800 obo. 555-3517.

1971 RED Corvette, 350, LT1, 5 spd., restored, $22 000 obo. 555-0703.

Sports, Racing Cars & Parts   980

1986 BMW 325E, 2 dr., navy blue, 43 000 kms. $19 000. 555-0311.

1980 CAMARO Z28, gold, no rust, T-roof, 350 v8, dual exhaust, headers, Kenwood stereo system, car cover & bra, $5 300. 555-9394.

PORSCHE TARGA softback. Very rare. Leather, 5 spd., new paint & top. $18 000, obo. 555-4725.

1974 TRIUMPH TR6. Reconditioned. Rust free. $8 900. 555-3634.

1980 MG Midget, Excellent condition, $4 250/obo, 555-0765.

1980 PORSCHE 924 Turbo. Air, p.w., glass sunroof, etc. Not winter driven. Exc. cond. Ph. 555-0039.

1982 PORSCHE (1982) 30 000 original kms., S. pkg., all leather, alarm, dark blue. $33 333. 555-6743 days/after hrs. 555-9873.

1984 CORVETTE, only 8 000 mi., very nice, $25 900. 555-3980.

1984 MERCEDES 500 SEL Dark gray, immac. $49 900. 555-0612.

Suggested Answers

1.

Kind of Car	Tallies	Frequency
BMW	l	1
Corvette	lll	3
Jaguar	ll	2
Mercedes	l	1
Mustang	l	1
Nissan	l	1
Porsche	llll	4
Other	�llll ll	7
Total	�llll �llll �llll �llll	20

2. Below is a list of radio stations. Use the information provided to complete the frequency table at the right.

CBC (Multi-Format)
CFCW (Country)
CFOK (Country)
CFRN (Oldies)
CHED (Rock-top 40)
CHFA (French)
CHMG (Classic Gold)
CHQT (Easy Listening)
CIRK (Rock)
CISN (Country)
CJCA (News/Talk)
CJKE (Easy Listening)
CJSR (Contemporary)
CKER (Ethnic)
CKNG (All Hit)
CKRA (Soft Rock)
CKUA (Multi-Format)

2.

Category	Tallies	Frequency
Multi-format	||	2
Country	||	2
Rock	|||| |	6
Easy listening	|||	3
Other	||||	5
Total	|||| |||| |||| |||	18

Guiding the Student

- Have the student do the Concluding Activities.

- Afterwards help the student check the answers and correct any errors. Suggested answers are on the next page of this booklet.

Concluding Activities   **Suggested Answers**

Mr. and Mrs Vandenberg raise hens. Below is a frequency table of the number of eggs they sell over a 2 week period. Use the data in the table to answer the following questions.

First Week	Number of Eggs	Second Week	Number of Eggs
Sunday	243	Sunday	242
Monday	242	Monday	294
Tuesday	191	Tuesday	283
Wednesday	269	Wednesday	225
Thursday	270	Thursday	236
Friday	245	Friday	267
Saturday	258	Saturday	271

1. Find the average number of eggs they get daily in the first week.

2. Find the average number of eggs they get daily in the second week.

3. How many dozen eggs can they agree to supply to their customers each day? (Hint: there are 12 eggs in a dozen)

1. 1 718 ÷ 7 = 245.4

   She averages 245 eggs a day the first week.

2. 1 818 ÷ 7 = 259.7

   She averages 260 eggs a day the second week.

3. Answers will vary.

   245 ÷ 12 = 20.4 dozen (average of 1st week)
   260 ÷ 12 = 21.7 dozen (average of 2nd week)

   She can agree to supply about 20 dozen a day.

   OR

   191 ÷ 12 = 15.9 dozen (lowest day)

   She can agree to supply about 16 dozen a day.
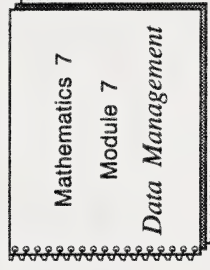
PICTOGRAPHS

What Lies Ahead

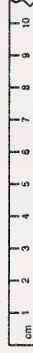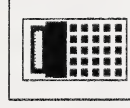In this section the student will learn these skills.

- interpreting pictographs
- constructing pictographs

Gathering Materials

The student will need these items for this section.

Mathematics 7

Module 7

Data Management

(optional)

Guiding the Student

- Have the student turn to Section 4 in the Module Booklet, and read the "What Lies Ahead" box and the introductory paragraphs of "Working Together".
- Next, have the student view the video or read the notes.

- Then have the student do the Practice Activities.
- Afterwards help the student check the answers and correct any errors. (Suggested answers are on the next page of the booklet.)

Introductory Activities

1. Use the pictograph below to answer the following questions.

Stanley Cup Winners (1959 — 1990)	
Montreal Canadians	🏆🏆🏆🏆🏆🏆🏆🏆🏆🏆🏆🏆
Chicago Black Hawks	🏆
Toronto Maple Leafs	🏆🏆🏆🏆
Boston Bruins	🏆🏆
Philadelphia Flyers	🏆🏆
New York Islanders	🏆🏆🏆🏆
Edmonton Oilers	🏆🏆🏆🏆🏆
Calgary Flames	🏆

Legend: Each 🏆 represents 1 Stanley Cup

a. Which hockey team won the most Stanley Cups from 1959-1989?

b. How many Stanley Cups did the Edmonton Oilers win?

c. How many Stanley Cups did Calgary Flames win?

Suggested Answers

1. a. Montreal Canadians

   b. 4

   c. 1

2. Use this graph to answer the following questions.

Number of Passengers at Canada's Busiest Airports (1985)[1]
Toronto ✗✗✗✗✗✗✗✗✗✗✗✗✗✗✗
Montreal (Dorval) ✗✗✗✗✗
Vancouver ✗✗✗✗✗✗
Calgary ✗✗✗
Winnipeg ✗✗
Legend: Each ✗ represents 100 000 passengers
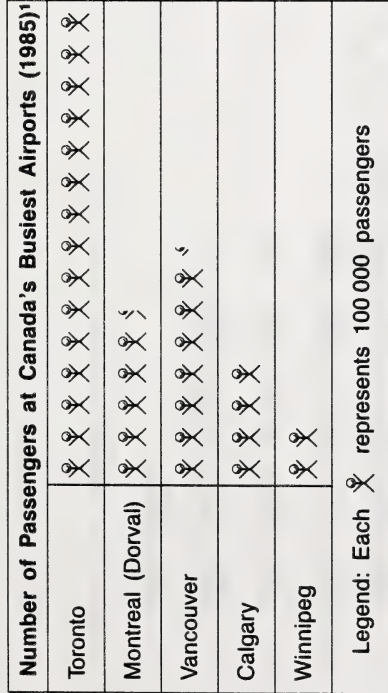
a. Which is Canada's busiest city?

b. Does Vancouver airport handle more passengers than Montreal (Dorval)?

c. How many more passengers were handled in Vancouver than in Calgary?

2. a. Toronto

b. Yes

c. 325 000

[1]Statistics Canada

3. Use the pictograph below to answer the following questions.

Number of Cars Sold by Big Auto City Sales (1991)

Jan.	
Feb.	
Mar.	
Apr.	
May	
June	
July	
Aug.	
Sept.	
Oct.	
Nov.	
Dec.	

Legend: Each 🚗 represents 10 cars sold
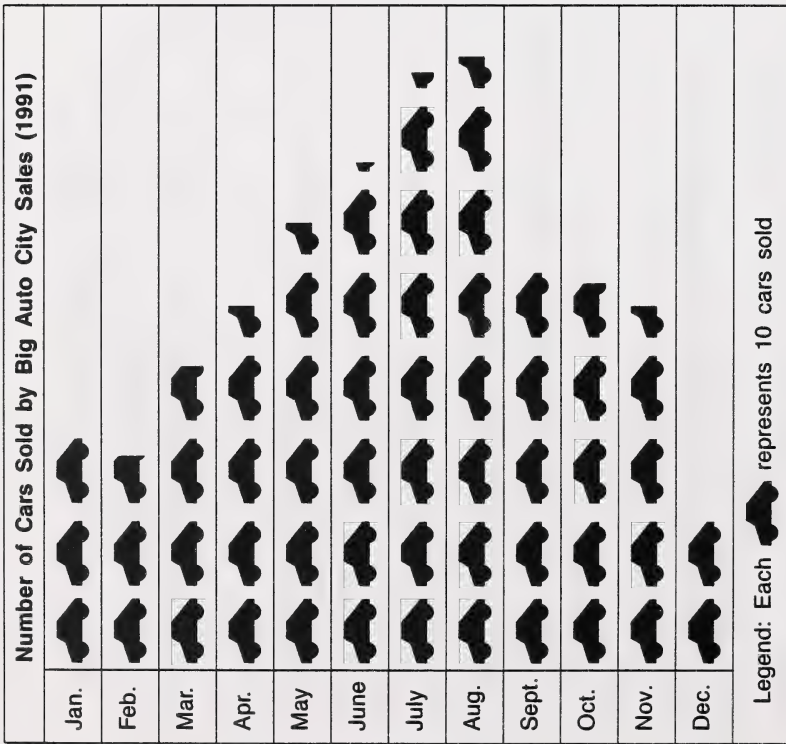
a. How many cars were sold in these months?

(i) August 1990?

(ii) December 1990?

3. a. (i) 7.5 × 10 = 75

   In August 75 cars were sold.

   (ii) 2 × 10 = 20

   In December 20 cars were sold.

b. How many more cars were sold in June than in January?

b. 3.1 × 10 = 31

   In June 31 more cars were sold than in January.

c. If each car was sold for $12 000, how much was brought into the business in April?

c. 4.5 × 10 = 45 cars
   45 × 12 000 = 540 000

   $540 000 was brought into the business in April.

d. Does this pictograph tell you clearly which are the best and worst months for car sales?

d. Yes.

4. Use the pictograph below to answer the following questions.

Longest-Running Canadian TV Shows (up to end of 1987-1988 season)
Hockey Night in Canada
CFL Football
Country Canada/Country Calendar
Front Page Challenge
The Nature of Things
The Friendly Giant
Hym Sing
The Tommy Hunter Show
Wide World of Sports
W-5

Legend: Each ▣ represents 4 seasons
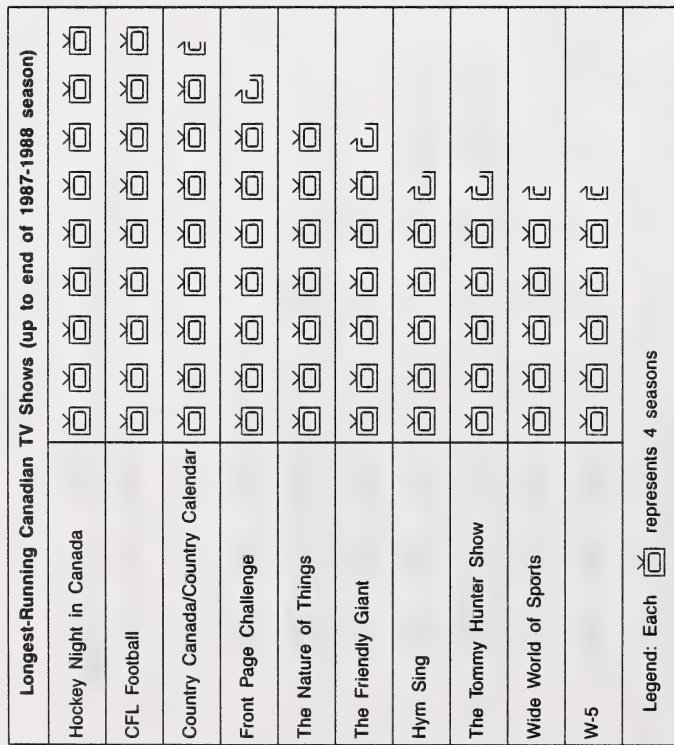
How many seasons had the following shows run up to the end of 1987-1988 season.

a. Hockey Night in Canada

b. Front Page Challenge

c. W-5

4. a. Up to the end of 1987-1988 season, Hockey Night in Canada had run 36 seasons.

b. Front Page Challenge had run 31 seasons.

c. W-5 had run 22 seasons.

Guiding the Student

- Have the student do the Practice Activities.

- Afterwards help the student check the answers and correct any errors. Suggested answers are on the next page of this booklet.

Practice Activities

These were the top money-making films up to 1987.

Film	Total Rental
E.T. The Extra Terrestrial (1982)	$227 960 804
Star Wars (1977)	193 500 000
Return of the Jedi (1983)	168 002 414
The Empire Strikes Back (1980)	141 600 000
Jaws (1975)	129 961 081

Construct a pictogram to display this data. Use 🎥 to represent $30 000 000.

Suggested Answers

Earnings of Films

E.T. The Extra Terrestrial	🎥🎥🎥🎥🎥🎥🎥🎥(
Star Wars	🎥🎥🎥🎥🎥🎥🎥
Return of the Jedi	🎥🎥🎥🎥🎥🎥
The Empire Strikes Back	🎥🎥🎥🎥🎥
Jaws	🎥🎥🎥🎥(

Legend: each 🎥 represents $30 000 000

BAR GRAPHS

What Lies Ahead

In this section the student will learn these skills.

- interpreting a bar graph
- constructing a bar graph

Gathering Materials

The student will need this item for this section.

Mathematics 7

Module 7

Data Management

(optional)

cm | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10
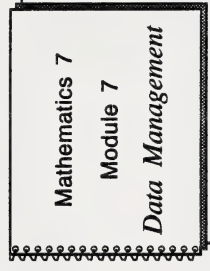
Guiding the Student

- Have the student turn to Section 5 of the Module Booklet, and read the "What Lies Ahead" box and the introductory paragraphs of "Working Together".
- Next, have the student view the video or read the notes.

- Then have the student do the Introductory Activities.
- Afterwards help the student check the answers and correct any errors. (Suggested answers are on the next page of the booklet.)

Introductory Activities

Suggested Answers

1. Use the bar graph below to answer the following
   questions.

Lengths of Famous Rivers

Length (km)
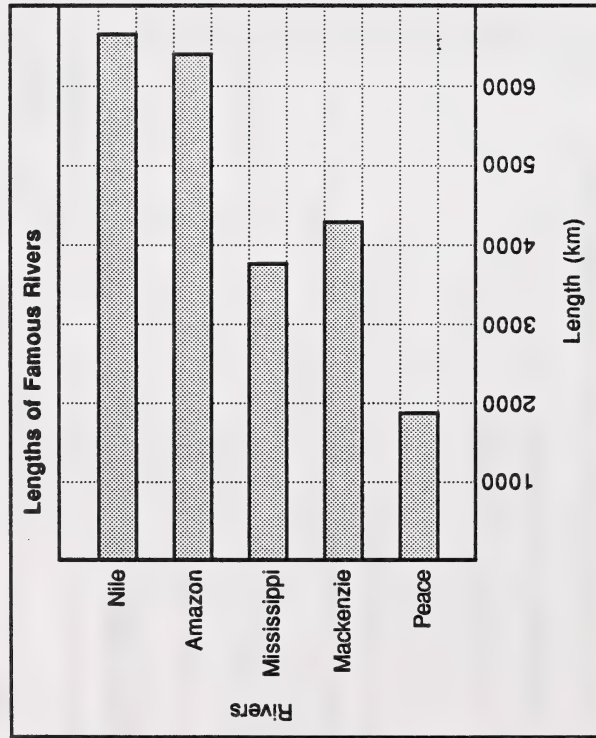
a. How long is the Amazon River?

b. How long is the Nile River?

c. How long is the Peace River?

1. a. About 6 400 km.

   b. About 6 700 km.

   c. About 1 900 km.

2. Use the graph below to answer the following
   questions.

Population of Canada's Largest Cities *(1986)[1]

Cities

(*includes neighbouring areas from which major centre draws its work force)
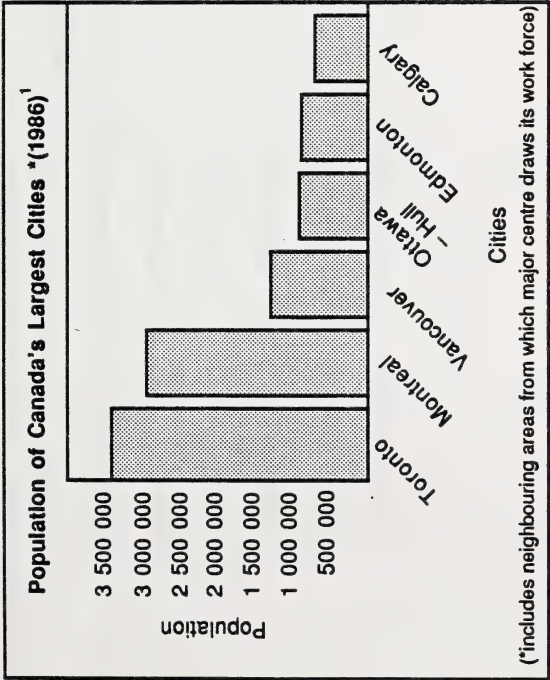
[1]Statistics Canada.

a. How many people live in Calgary?

b. How many people live in Montreal?

c. How many people live in Vancouver?

2. a. About 675 000 people live in Calgary.

b. About 2 900 000 people live in Montreal.

c. About 1 250 000 people live in Vancouver.

Guiding the Student

• Have the student do the Practice Activities.

• Afterwards help the student check the answers and correct any errors. Suggested answers are on the next page of this booklet.

Practice Activities

Construct a bar graph to display the following data.

Population by Continents, 1988

Asia	3 031 100 000
Europe	684 800 000
Africa	615 300 000
Australia	25 500 000
North America	413 100 000
South America	282 200 000

Suggested Answers
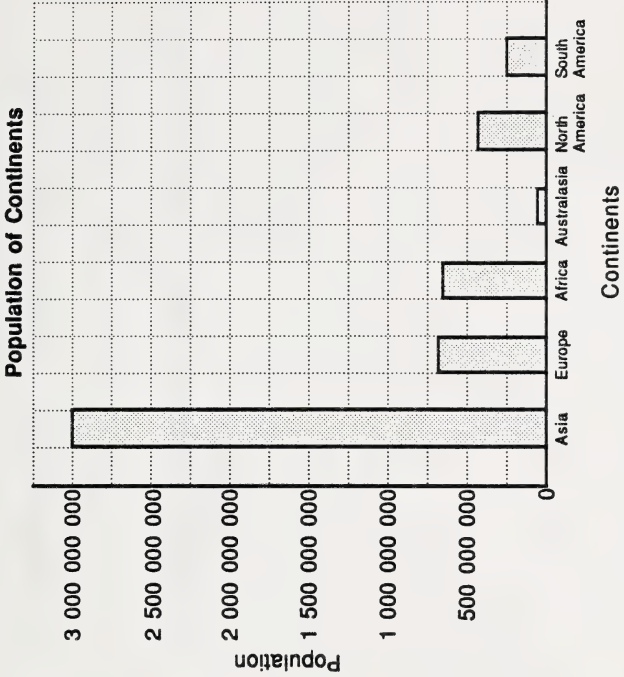
Population of Continents

Guiding the Student

• Have the student do the Concluding Activities.

• Afterwards help the student check the answers and correct any errors. Suggested answers are on the next page of this booklet.

Concluding Activities

Suggested Answers

1. Use the graph below to answer the following questions.

Ice Hockey Medal Winners (1924 - 1984)

51
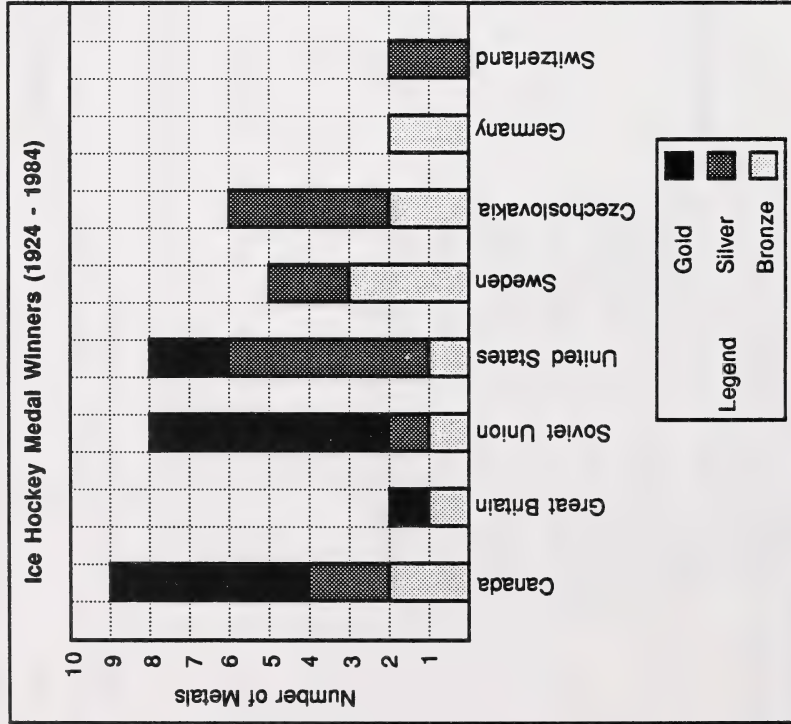
a. Which country won the most medals?

1. a. Canada won the most medals.

b. The Soviet Union and United States won the same number of medals. Which country won the most gold?

b. The Soviet Union won the most gold medals.

c. Which countries have won gold medals?

c. Canada, Great Britian, and the Soviet Union have won gold medals.

2. Use the graph below to answer the following questions.

Average Single-family Housing Price[1]

Price ($): 200 000, 180 000, 160 000, 140 000, 120 000, 100 000, 80 000, 60 000, 40 000, 20 000

Cities: Toronto, Vancouver, Calgary, Edmonton, Saskatoon, Regina, Winnipeg

a. In which city did houses cost the most?

  (i) in 1981

  (ii) in 1987

b. Which city had the most economical houses?

  (i) in 1981

  (ii) in 1987

c. In which city did prices increase the most between 1981 and 1987?

2. a. (i) In 1981 houses cost the most in Vancouver.

  (ii) In 1987 houses cost the most in Toronto.

b. (i) Winnipeg had the most economical houses in 1981.

  (ii) Regina had the most economical houses in 1987.

c. In Edmonton, Calgary, and Vancouver prices increased the most between 1981 and 1987.

3. Draw a bar graph to illustrate the following.

Precipitation for Cities in Canada[1]

	Millimetres of Precipitation				
Month	St. John's	Montreal	Ottawa	Winnipeg	Vancouver
January	156	72	61	21	154
July	75	90	86	76	32

Precipitation for Cities
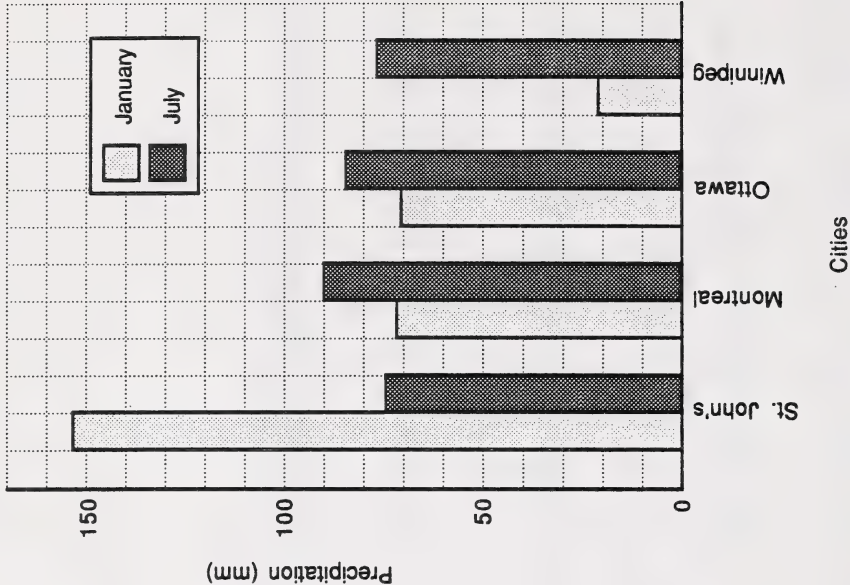
THE LINE GRAPH

What Lies Ahead

In this section the student will learn these skills.

- interpreting a line graph
- constructing a line graph

Gathering Materials

The student will need this item for this section.

Mathematics 7

Module 7

Data Management
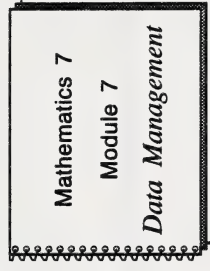
coloured
markers

(optional)

Guiding the Student

- Have the student turn to Section 6 of the Module Booklet, and read the "What Lies Ahead" box and the introductory paragraphs of "Working Together".
- Next, have the student view the video or read the notes.

- Then have the student do the Introductory Activities.
- Afterwards help the student check the answers and correct any errors. (Suggested answers are on the next page of the booklet.)

Introductory Activities   **Suggested Answers**

1. Use the graph below to answer the following questions.

A Plane Takes Off
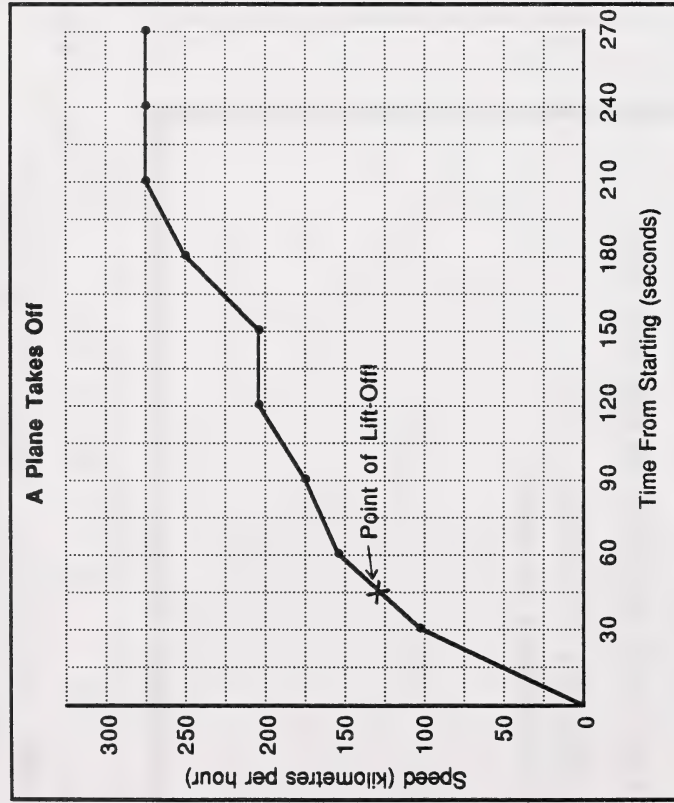
a. After how long did the plane become airborne?

b. How fast was the plane travelling when it took-off?

c. Did it change its speed between 2 minutes and 3 minutes?

d. What was the highest speed attained by the aircraft?

1. a. The plane became airborne after 145 seconds.

   b. The plane was travelling 125 km/h.

   c. Yes.

   d. The speed attained was 275 km/h.

2. Use the graph below to answer the following questions.

Telephone Exchange Busy Times
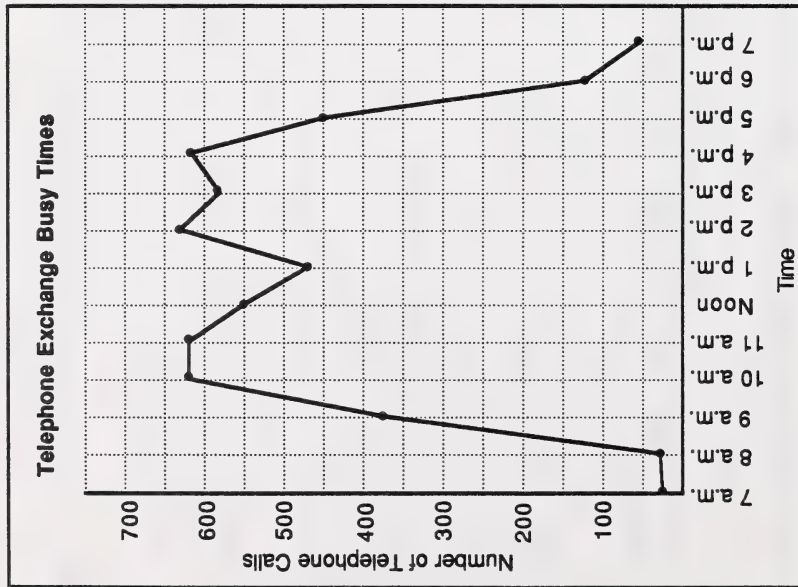
a. At what hours were there more than 500 calls going through the exchange?

2. a. 10 a.m., 11 a.m., 12, 2 p.m., 3 p.m., 4 p.m.

b. Try to explain why most calls are made between 9 a.m. and 5 p.m.

b. These are business hours.

c. Why would there be a drop-off in call between 12:00 and 1:00 p.m.?

c. This is noon hour.

Guiding the Student

• Have the student do the Practice Activities.

• Afterwards help the student check the answers and correct any errors. Suggested answers are on the next page of this booklet.

Practice Activities

1. Below is data from McCarthy's Sporting Goods Store. Construct a line graph to display the data.

Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Sales of Skis	39	23	10	5	4	2	4	4	10	48	50	77

Suggested Answers

1.

Sales of Skis at McCarthy's Sporting Goods Store

Computer Alternative

2. If you require further practice plotting a point, do Lessons 18 and 19 on the *Pre-Algebra disk of Computer Drill and Instruction: Mathematics, Level D* (SRA)

Guiding the Student

- Have the student do the Concluding Activities.

- Afterwards help the student check the answers and correct any errors. Suggested answers are on the next page of this booklet.

Concluding Activities

Suggested Answers

1. Use the graph below to answer the following questions.

Average Single Family Housing Price[1]

Legend:
- Toronto
- Vancouver
- Edmonton

Cost ($) vs Years

Y-axis: 180 000, 160 000, 140 000, 120 000, 100 000, 80 000, 60 000

X-axis: 1985, 1986, 1987

a. In which city did the houses cost the most in 1987?

b. In which city did the houses cost the least in 1987?

c. In which city did the price of houses change the least from 1985-1987?

1. a. In 1987 houses cost the most in Toronto.

b. In 1987 houses cost the least in Edmonton.

c. The price of houses changed the least in Toronto from 1985-1987.

2. For a science fair Susan decided to see which kind of logs burned the hottest and longest. She burnt 3 logs of the same weight. One log was poplar, one was tamarack and one was birch. She placed a thermometer in front of the fireplace and took readings every 5 minutes. Here are the results.

Burning Logs

POPLAR	
Time	Temp.
0	20
5	24
10	27
15	28
20	34
25	35
30	35
35	34
40	30
45	28
50	26
55	25

TAMARACK	
Time	Temp.
0	20
5	23
10	27
15	27
20	28
25	30
30	32
35	34
40	34
45	30
50	30
55	27

BIRCH	
Time	Temp.
0	20
5	22
10	27
15	28
20	30
25	35
30	35
35	38
40	40
45	40
50	40
55	38
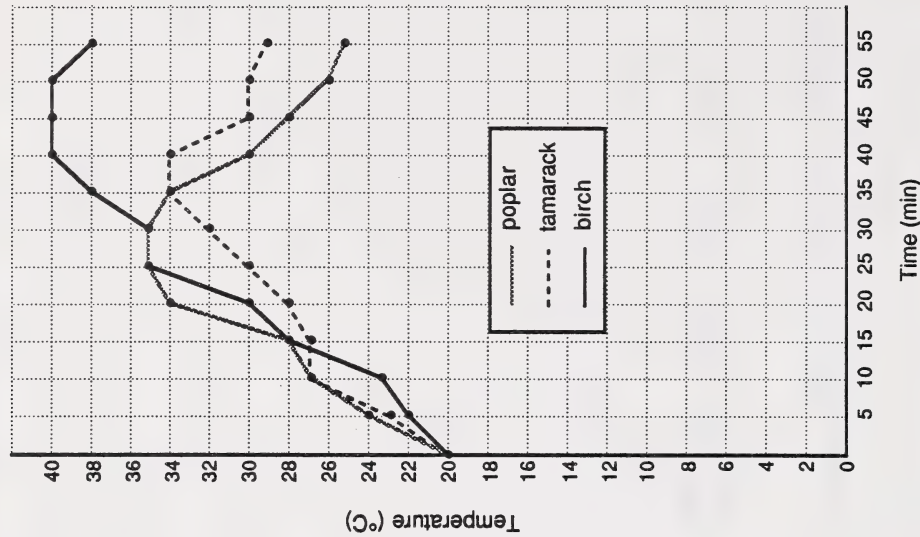
Display this information on a line graph. Use different colours to represent the three kinds of wood.

3. Use the graph you constructed in Question 2 to answer the following.

a. Which kind of log got the hottest?

b. How long did it take each of the following logs to reach its highest temperature?

(i) poplar?

(ii) tamarack?

(iii) birch?

c. Which logs cooled-off the fastest?

d. Why did each temperature start at 20°C?

3. a. Birch got the hottest.

b. (i)   Poplar: 40 minutes

(ii) Tamarack: 35 minutes

(iii) Birch: 40 minutes

c. Poplar cooled off the fastest.

d. This is room temperature.

CIRCLE GRAPHS

Gathering Materials

The student will need these items for this section.

Mathematics 7
Module 7
Data Management

(optional)

What Lies Ahead

In this section the student will learn these skills.

- interpreting a circle graph
- constructing a circle graph

Guiding the Student
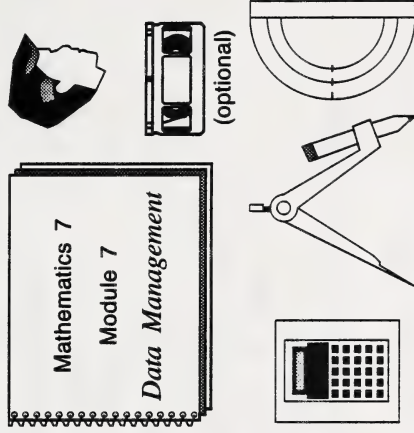
- Have the student turn to Section 7 of the Module Booklet, and read the "What Lies Ahead" box and the introductory paragraphs of "Working Together".
- Next, have the student view the video or read the notes.

- Then have the student do the Introductory Activities. Afterwards help the student check the answers and correct any errors. (Suggested answers are on the next page of the booklet.)
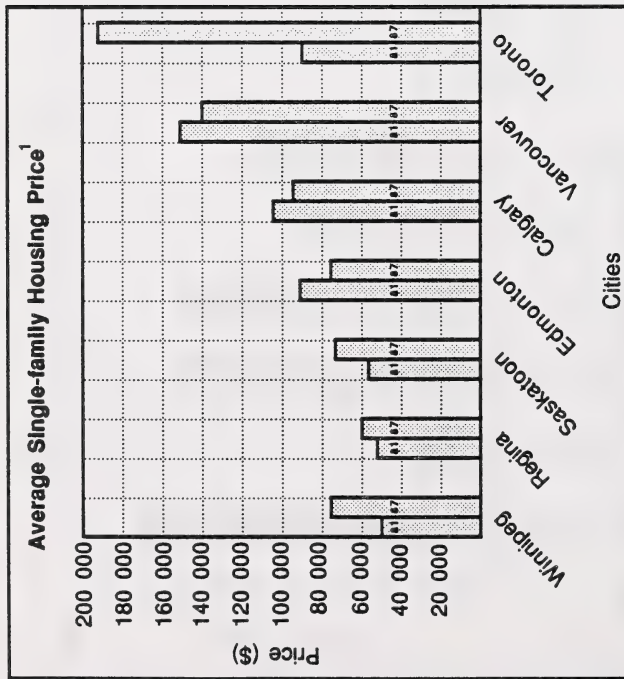
Introductory Activities

Suggested Answers

1. Look at the circle graph below and then answer the following questions.

Local Garbage

Paper
40%

Food
30%

Other Waste 4%

Cans
6%

Vegetation
10%
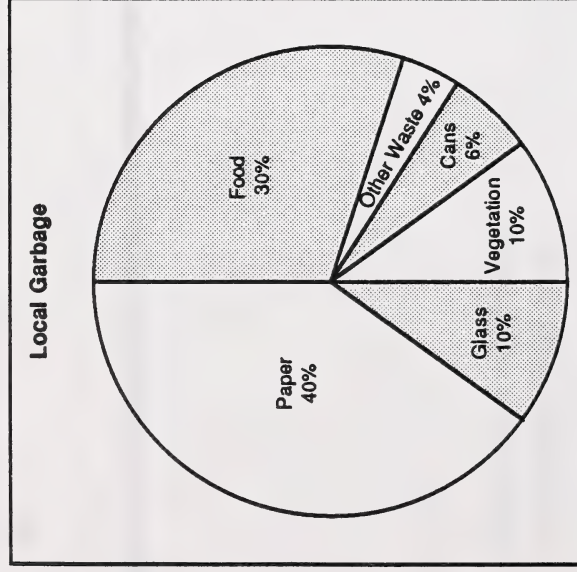
Glass
10%

a. Of which kind of garbage is there the most?

b. How many times as much paper is thrown out as vegetables?

1. a. Paper

   b. 4 times

c. In 1t (1 000 kg) of garbage, how many kilograms is there of

(i) glass

(ii) Cans

(iii) paper

d. If people could reuse the paper, the glass, and the cans, how much out of every 1 000 kg would have to be thrown away?

c. (i) 30% of 1 000 kg

= 0.3 × 1 000

= 300 kg

In 1t there is 300 kg of glass.

(ii) 6% of 1 000 kg

= 0.06 × 1 000

= 60 kg

In 1t there is 60 kg of cans.

(iii) 40% of 1 000 kg

= 0.4 × 1 000

= 400 kg

In 1t there is 400 kg of paper.

d. 40 + 10 + 6 = 56%

56% of 1 000

= 0.56 × 1 000

= 560 kg

In 1t 560 kg could be reused.

1 000 − 560 = 440

In 1t 440 kg would have to be thrown away.

2. Use the graph below to answer the following questions.

Canada's Production of Wheat (1986)[1]

Saskatchewan
$18 800 000

Others $1 275 000

Manitoba
$4 450 000
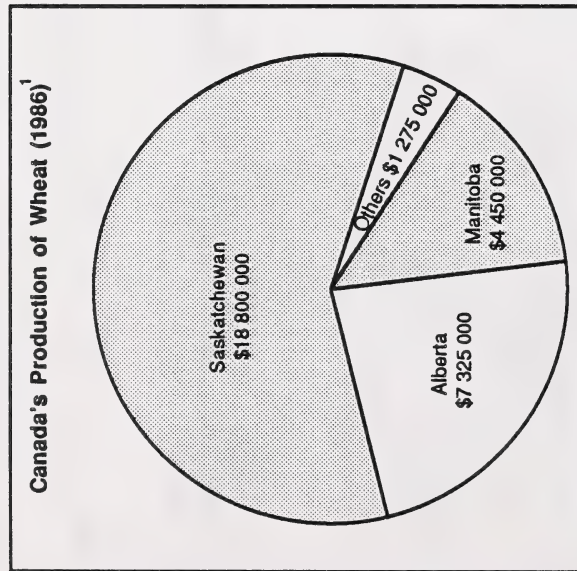
Alberta
$7 325 000

[1]Statistics Canada.

a. Which province produced the most wheat?

2. a. Saskatchewan

b. About what percent of the total production of wheat is produced in each province?

b. (i) about 60%

(i) Saskatchewan

(ii) about 25%

(ii) Alberta

(iii) about 12%

(iii) Manitoba

Computer Alternative

3. For more practice estimating percents on a circle graph, do "Pie Graphics" on *Disk C of MAC 7* (Houghton Mifflin).

Guiding the Student

- Have the student read the notes on how to construct a circle graph.
- Have the student do the Practice Activities.

- Afterwards help the student check the answers and correct any errors. Suggested answers are on the next page of this booklet.

Practice Activities

1. George Grant's net income each month is 2 000.00.
   Here's how he budgets the money.

Expenses	Cost
Mortgage and property taxes	$780
Food	540
Clothing	180
Medical	160
Transportation	100
Personal care	60
Gifts and entertainment	120
Household maintenance	60

Draw a circle graph to illustrate this data.

Suggested Answers

1.

George Grant's Budget
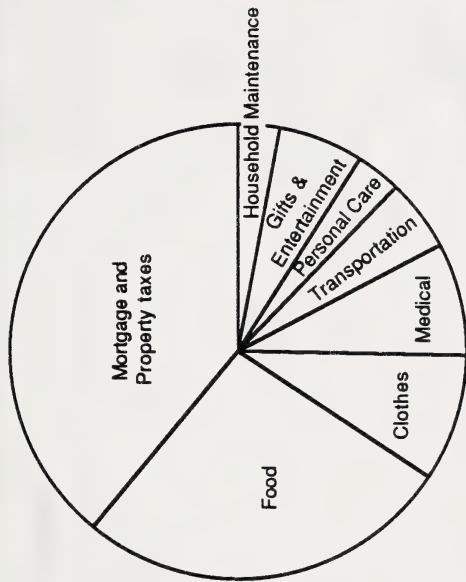
2. A package of cereal seen at a supermarket contained the following nutriitional information.

Per Serving	
Nutrients	**Mass**
Protein	4.6 g
Fat	1.7 g
Sugar	13.5 g
Dietary Fibre	8.2 g

A serving is 28 g. Construct a circle graph to show the amount of each nutrient in a serving of the cereal.

2.

A Serving of Cereal
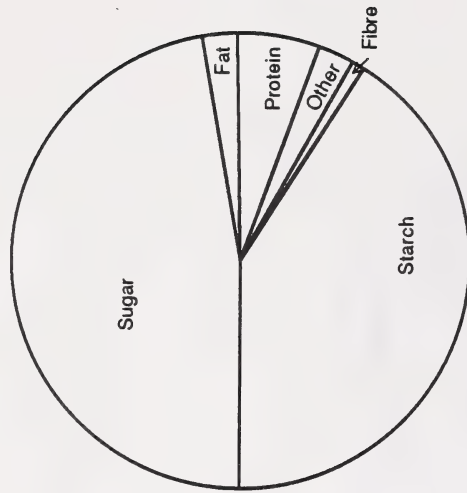
Sugar

Fat

Protein

Other

Fibre

Starch

Guiding the Student

- Have the student do the Concluding Activities.

- Afterwards help the student check the answers and correct any errors. Suggested answers are on the next page of this booklet.
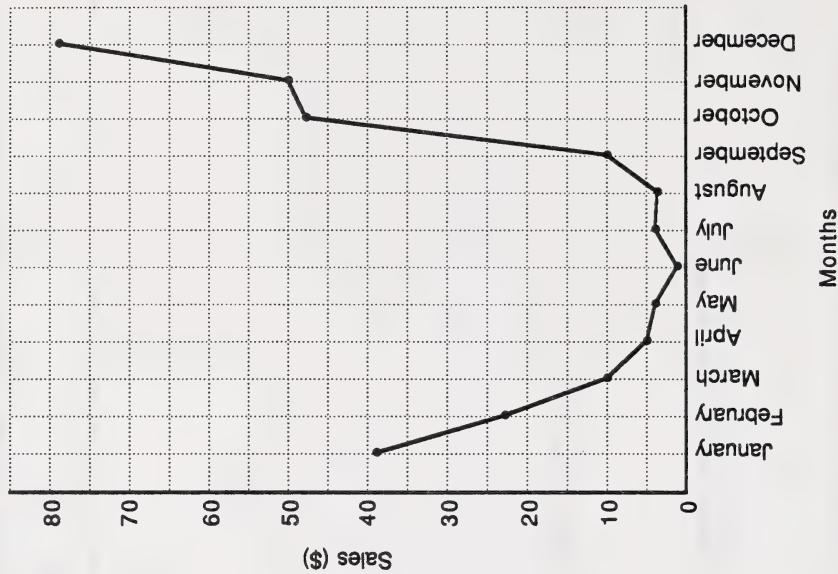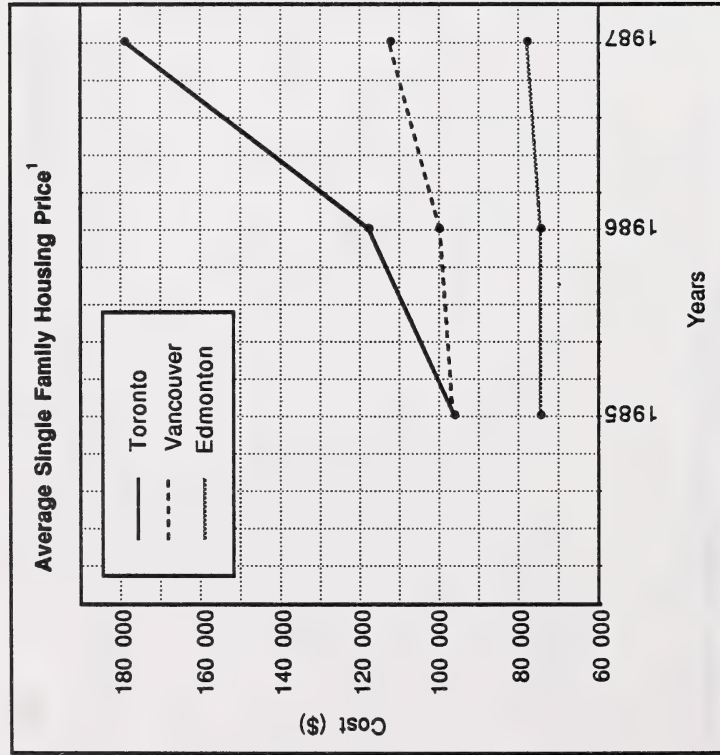
Concluding Activities

Suggested Answers

Circles are usually used to show percents, but other shapes such as rectangles can be "sliced" into percents. Consider the graph below.

Canadian Energy Consumption[1]

Legend:
- Petroleum
- Coal
- Power (hydro & thermal)
- Natural gas
- Wood

1951
- 34%
- 46%
- 10%
- 2%
- 8%

1961
- 58%
- 16%
- 13%
- 10%
- 3%
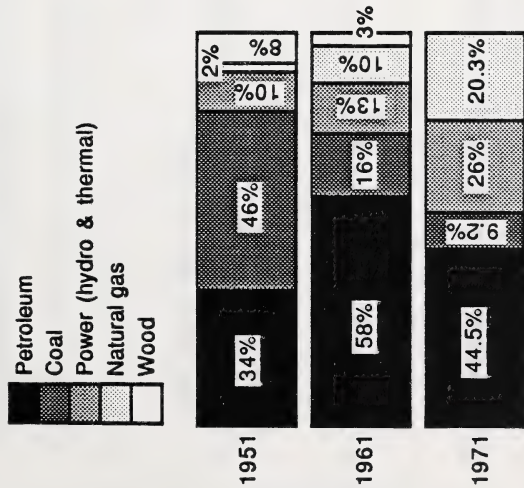
1971
- 44.5%
- 9.2%
- 26%
- 20.3%

[1]Statistics Canada.

1. What was the form of energy used the least

   a. in 1951?

   b. in 1961?

   c. in 1971?

2. a. Which form of energy decreased proportionally the most from 1951 to 1971?

   b. Which form of energy increased proportionally the most from 1951 to 1971?

1. a. In 1951 natural gas was used the least.

   b. In 1961 wood was used the least.

   c. In 1971 coal was used the least.

2. a. Wood decreased proportionally the most.

   b. Natural gas increased proportionally the most.

CHOOSING THE MOST APPROPRIATE GRAPH

What Lies Ahead

In this section the student will learn these skills.

- choosing the most appropriate graph

- displaying data

Gathering Materials

The student will need this item for this section.

Mathematics 7

Module 7

Data Management
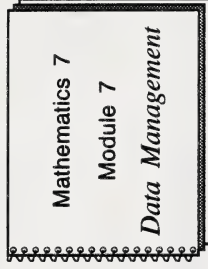
MATHWISE: Graphs — Locating and Interpreting

(optional)

Guiding the Student

- Have the student turn to Section 8 of the Module Booklet, and read the "What Lies Ahead" box and the introductory paragraphs of "Working Together".

- Next, have the student view the video or read the notes.

- Then have the student do the Practice Activities.

- Afterwards help the student check the answers and correct any errors. (Suggested answers are on the next page of the booklet.)

Practice Activities

Given the following information, you are to choose which kind of graph would be **best** to represent the information (Choose from pictographs, bar graphs, broken-line-graphs, or circle graphs).

1. You want to show that 60% of the schools students come from farms and acreages while 40% come from the town itself.

2. You want to show to a group of 6-year-olds that Mount Everest is taller than a skyscraper.

3. You want to compare the populations of Toronto, Montreal, Vancouver, Edmonton and Calgary.

4. You want to track how far a rocket has gone from the time of its launch.

5. You want to show what sports Canadians like to watch the most — hockey 30%, football 25%, curling 20%, baseball 10%, figure skating 10%, others 5%.

6. You want to show the average temperature by month for the city of Victoria.

7. You want to show temperature change with increase in elevation.

Suggested Answers

1. Circle graph

2. Bar graph

3. Bar graph or pictograph

4. Line graph

5. Circle graph

6. Line graph

7. Line graph

8. You wish to show the money raised by various classes in a fund drive.

8. Circle graph

Class	Amount Raised	Percent of Total
Grade 7A	$ 60	20%
Grade 7B	$ 90	30%
Grade 7C	$120	40%
Grade 7D	$ 30	10%

9. You wish to show how many tourists came to Canada in 1981, 1985, and 1989?

9. Bar graph, pictograph

10. You wish to show the trend in the Canadian demand for electricity from 1960 to 1990.

10. Line graph

81

SUMMARY

What Lies Ahead

In this summary the student will review the skills taught in this module.

Gathering Materials

For this section the student will need these items.

Mathematics 7
Module 7
Data Management
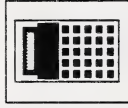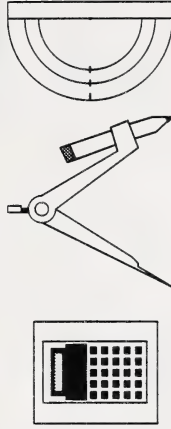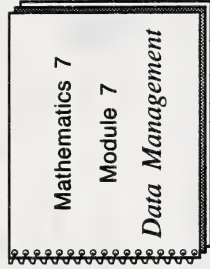
Guiding the Student

- Have the student turn to the Summary in the *Module Booklet* and reveiw the skills.

- Then have the student turn to Section 1 to review the pretest and to correct any errors.

MODULE CONCLUSION

Gathering Materials

The student will need the following items.

Assignment
Booklet

Mathematics 7
Module 7
Data Management

What Lies Ahead

The student is now ready to do the assignment in the Assignment Booklet. The student will be graded on the work done in this booklet.
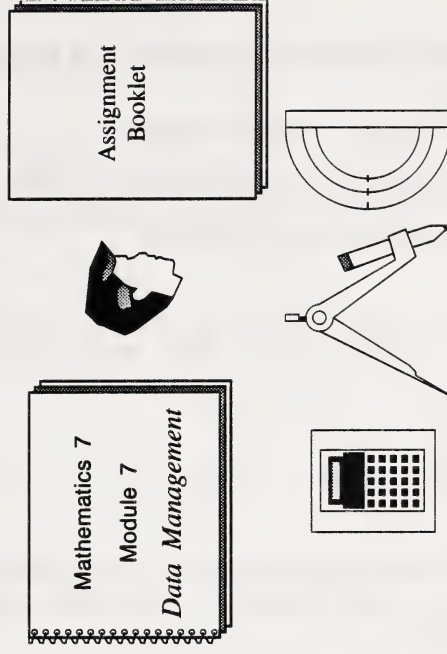
Guiding the Student

• Have the student complete the Assignment. The student may refer to the notes, but the Assignment must be done independently.

• Afterwards, give the student feedback and a grade. Suggested answers are provided on the next few pages of this booklet.

Suggested Answers to Assignment Booklet

Part 1: Multiple Choice Questions

50

Each of the following questions has four suggested answers, one of which is better than the others. Indicate your choice by writing the letter in the blank on the response page at the right.

1. Calculate the average score of John's French marks. He scored 50%, 70%, and 90% in his 3 tests. What would his average be?

   a. 72%
   b. 70%
   c. 90%
   d. 75%

2. The average length jumped in a long-jump competition is 4 metres. John jumped 4.3 m and Linda jumped 4.5 m. What can you conclude?

   a. Both are about average jumpers.
   b. John is below average and Linda is better than average.
   c. Both are better than average.
   d. The average is quite low.

3. In a baseball game the average time to complete an inning was 18 minutes. At the bottom of the tenth inning, for how long had the teams been playing?

   a. $1\frac{1}{2}$ hours
   b. 2 hours
   c. $2\frac{1}{2}$ hours
   d. 3 hours

4. Jason has bowled 9 strings. His average score is 216. If he bowls 1 more string and scores 196 what is his new average?

   a. 210
   b. 212
   c. 214
   d. 216

Part 1 Response Page

1.   b

2.   c

3.   d

4.   c

Part 1 (continued)

5. Which tally chart shows the correct number of ●'s and O's?

a.

●'s	卌 IIII
O's	卌 卌 I

b.

●'s	卌 卌 I
O's	卌 IIII

c.

●'s	卌 卌 I
O's	卌 III

d.

●'s	卌 卌 II
O's	卌 IIII

6. Which number represents the number of ●'s tallied in Chart c above?

a. 11
b. 8
c. 12
d. 9

Part 1 Response Page (continued)

5. ____a____

6. ___c___

Part 1 (continued)

This frequency table was made by interviewing 35 married couples to discover the number of children in their families. Use this frequency table to answer Questions 7 and 8.

Number of Children	Tallies	Frequency
0	卌	5
1	‖‖	4
2	卌 卌 ‖‖	13
3	卌 ‖	7
4	‖‖	3
5	‖	2
6	‖	1
More Than 6		0

7. In how many families were there 2 children?

   a. 5
   b. 13
   c. 3
   d. 0

8. How many children were there altogether?

   a. 35
   b. 27
   c. 100
   d. 79

Part 1 Response Page (continued)

7. ___b___

8. ___d___

Part 1 (continued)

From the information in the pictograph below, answer Questions 9 to 11.

Number of Blue Herons in North America

Legend: Each represents 50,000 blue herons
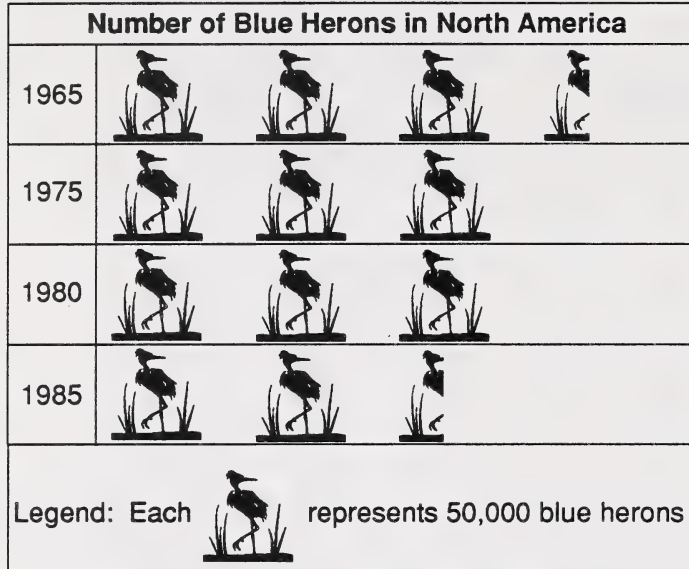
9. In what year was the number of blue heron's the greatest?

    a. 1965
    b. 1970
    c. 1975
    d. 1980

10. In 1965 there were approximately

    a. 150 000 blue herons
    b. 17 500 blue herons
    c. 175 000 blue herons
    d. 200 000 blue herons

11. Between 1965 and 1985 the number of blue herons

    a. increased by 50 000
    b. decreased by 50 000
    c. stayed about the same
    d. decreased by 5 000

Part 1 Response Page (continued)

9. ___a___

10. ___c___

11. ___b___

Part 1 (continued)

From the information in the bar graph below, answer Questions 12 to 15.

Percentage of Households with Televisions
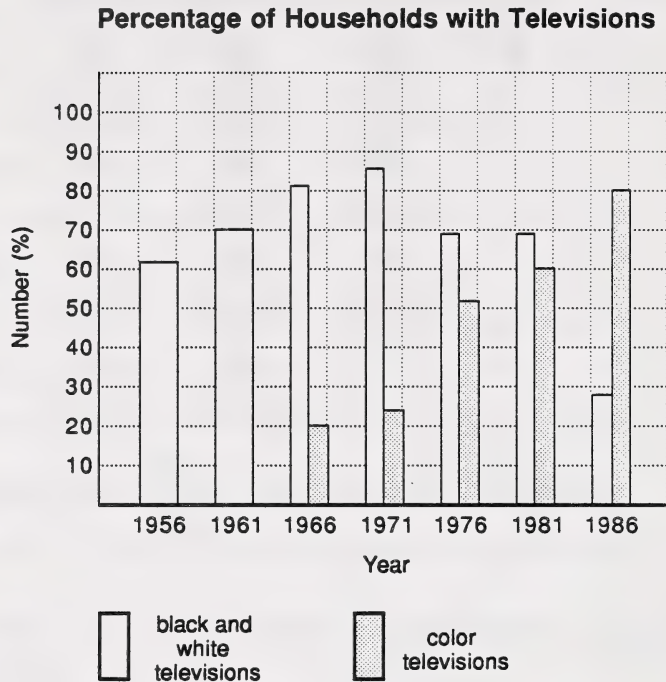
12. Until what year did the percentage of households with black and white televisions rise?

    a. 1986
    b. 1971
    c. 1956
    d. 1981

13. Why is the percentage of households with color televisons not shown for 1956?

    a. Colored televisions were not available.
    b. People preferred black and white.
    c. Colored televisions were too expensive.
    d. Black and white televisions were very cheap.

Part 1 Response Page (continued)

12. ___b___

13. ___a___

Part 1 (continued)

14. In which year were there more color televisions than black and white televisions?

    a. 1956
    b. 1971
    c. 1981
    d. 1986

15. What percentage of households had color televisions in 1976?

    a. 50%
    b. 60%
    c. 40%
    d. 75%

Part 1 Response Page (continued)

14. ___d___

15. ___a___

Part 1 (continued)

From the information in the line graph below, answer Questions 16 to 18.

Sales of Groceries at Megastore
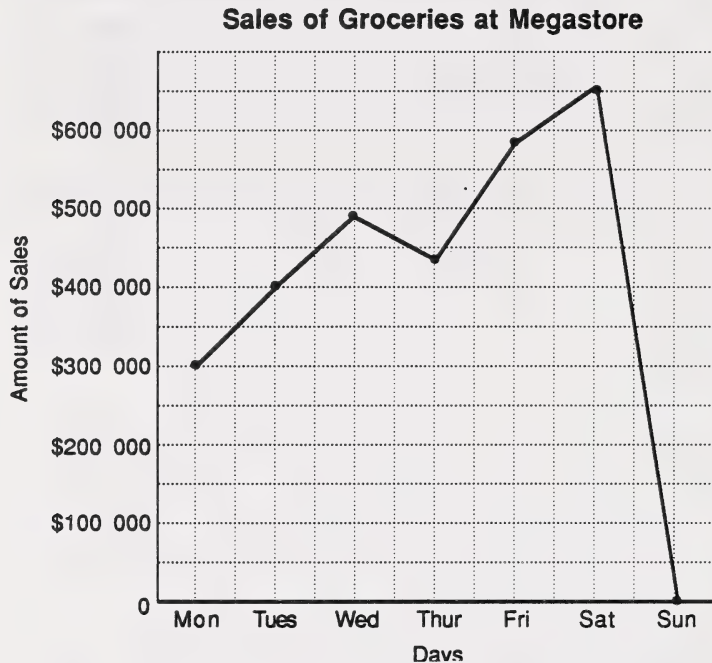
16. What day had the greatest sales?

    a. Saturday
    b. Wednesday
    c. Sunday
    d. Monday

17. Which day had the lowest sales?

    a. Monday
    b. Thursday
    c. Friday
    d. Sunday

18. What is the difference in the amount sold on Friday and Wednesday?

    a. $50 000
    b. $100 000
    c. $150 000
    d. $200 000

Part 1 Response Page (continued)

16. ___a___

17. ___d___

18. ___b___

Part 1 (continued)

From the information in the circle graphs below, answer
Questions 19 to 22.

Spending of Family Budget

Total Spent $1600.00   Total Spent $2500.00
(per month)   (per month)
1980   1990
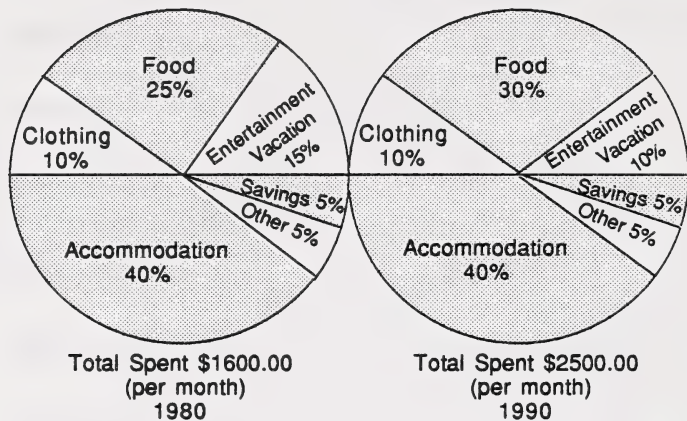
19. In both graphs the most expensive part of the family's budget was

   a. food
   b. entertainment, vacations
   c. clothing
   d. accommodation

20. The amount spent on clothing in 1980 would be

   a. $160
   b. $16
   c. $100
   d. $10

Part 1 Response Page (continued)

19. ___d___

20. ___a___

Part 1 (continued)

21. In what areas has the percent spent risen between 1980 and 1990?

    a. clothing and other
    b. food and accommodation
    c. entertainment and savings
    d. only food

22. The amount spent per month on food in 1990 was

    a. $750.00
    b. $400.00
    c. $500.00
    d. $480.00

23. A group of 25 children were interviewed to discover where they would like to go on a field trip. The results were recorded in a frequency table.

Place	Tally	Frequency
Museum	Ⅷ ‖‖	9
Zoo	Ⅷ ‖‖	8
Planetarium	Ⅷ ‖	6
Art Gallery	‖	2

Which type of graph would be unsuitable for displaying this data?

a. pictograph
b. bar graph
c. line graph
d. circle graph

Part 1 Response Page (continued)

21. ___b___

22. ___a___

23. ___c___

Part 1 (continued)

24. The height of a plant was recorded every ten days after it sprouted.

Day	Height
10	6
20	22
30	34
40	41
50	45
60	47
70	48

Which type of graph would best display this data?

a. pictograph
b. bargraph
c. line graph
d. circle graph

25. This table shows how the earth's surface is covered.

Surface Type	Percent
Water	72%
Land With Vegetation	16%
Other Land	12%

What type of graph would best display this data?

a. pictograph
b. bar graph
c. line graph
d. circle graph

Part 1 Response Page (continued)

24. ___c___

25. ___d___

.

Total for Part 1 = _____ (maximum possible: 50 marks)

Part 2: Short-Answer Questions

When answering the following questions, give complete answers and show all necessary work.

(100)

10

1. Susanna and Harold are twins who are in grade 12. In three subjects they are in the same classes. They have each taken 5 class tests. All marks are out of 100.

		Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
	Math	70	80	72	88	70	
Susanna	English	55	75	80	45	65	
	Science	67	74	52	86	61	
	Math	75	84	70	76	75	
Harold	English	60	65	75	55	80	
	Science	53	47	42	45	53	

a. Calculate the average marks for each of the following in mathematics.

(i) Susanna
(ii) Harold

b. In which of the two other subjects is Harold doing better, english or science?

c. If 50 is the pass mark, is Harold in any danger of failing science? (Explain)

d. If there is one more test (the 6th) and marks are not rounded, what mark must Harold get in this final test in order to pass science?

Part 2 Response Page

1. a. (i) 65

    (ii) 65

    b. Science

    c. Yes. He has presently an average below 50.

    d. He must get a mark of 60 or better.

Part 2 (continued)

20

2. The recreation board in Lamond decided to do some research into what summertime activities the people enjoyed, so it could plan the summer program. 50 people were asked "What is your favorite sporting activity in the summer?" The responses, of the 50 people asked is as follows:

fb, g, g, sw, t, g, sc, bb, g, o, g, g, t, sc, sc, sc, bb, o, sw, o, t, t, fb, fb, bb, sw, o, fb, t, sw, g, g, sc, o, bb, o, sw, fb, sw, g, t, g, sc, bb, o, sw, sc, g, g, bb

Legend to Symbols	fb = Football	sw = Swimming	bb = Baseball
	g = Golf	t = Tennis	sc = Soccer
	o = Another activity		

a. Fill in the following table using tally marks and work out the frequency for each activity.

b. Which appears to be the most popular summertime sport?

c. Which appears to be the least popular summertime sport?

d. Which is the more popular swimming or soccer?

Part 2 Response Page (continued)

2. a.

Sport	Tally	Frequency
Football (fb)	卌 ‖	7
Golf (g)	卌 卌 ‖	12
Swimming (sw)	卌 ‖	7
Tennis (t)	卌 |	6
Baseball (bb)	卌	5
Soccer (sc)	卌 |	6
Another Activity (o)	卌 ‖	7

b. golf

c. baseball

d. swimming

Part 2 (continued)

10

3. Use the graph below to answer the following questions.

Weekly Earnings of Employed (1988)

Sector of Employment	Earnings
Forestry	$ $ $ $ ¢
Oil & Gas	$ $ $ $ $
Manufacturing	$ $ $ $
Finance	$ $ $ $ $ $
Trades	$ $ $ $ ¢
Retailing	$ $ $
Farming	$ $ $ ¢
Legend $ = 100.00	

a. How much would a person earn in each of the following?

   (i)   forestry
   (ii) oil and gas
   (iii) retailing

b. About how much less would a person earn in farming than in trades?

c. How much more would a person earn in finance than in farming?

Part 2 Response Page (continued)

3. a. (i) $450

        (ii) $500

        (iii) $300

    b. $100 per week

    c. $150 per week

Part 2 (continued)

10 4. A cattleman keeps track of the number of bales of hay he uses to feed his cattle.

October	30	November	40
December	54	January	60
February	45	March	35
April	36	May	25

Construct a pictogram to display this data using the legend ⬠ = 5 bales.

Part 2 Response Page (continued)

4.

Bales of Hay Used Each Month	
October	⬡⬡⬡⬡⬡
November	⬡⬡⬡⬡⬡⬡
December	⬡⬡⬡⬡⬡⬡⬡⬡◗
January	⬡⬡⬡⬡⬡⬡⬡⬡⬡⬡
February	⬡⬡⬡⬡⬡⬡⬡
March	⬡⬡⬡⬡⬡⬡
April	⬡⬡⬡⬡⬡⬡⌄
May	⬡⬡⬡⬡⬡
Legend: Each ⬡ represents 5 bales.	

Part 2 (continued)

10   5. Use the graph below to answer the following questions.
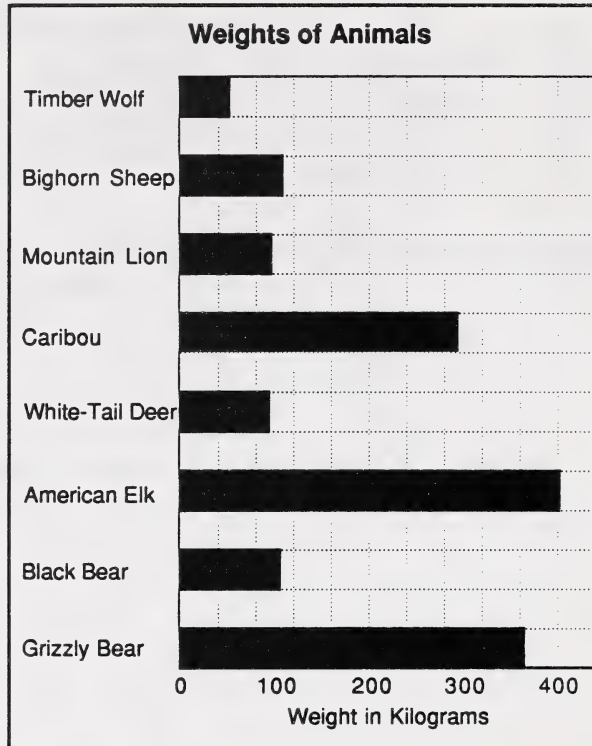
Weights of Animals

a. What is the weight of the heaviest animal shown on the graph?

b. What two animals most closely weigh the same?

c. What is the weight shown for these animals?

(i)   bighorn sheep
(ii) grizzly bear
(iii) caribou

Part 2 Response Page (continued)

5. a. 400 kg

   b. Bighorn sheep and black bear

   c. (i)   120 kg

       (ii)   360 kg

       (iii) 285 kg

Part 2 (continued)

10   6. On the graph paper construct a bar-graph of the following information.

Average Annual Snowfall (cm)	
Halifax	180
Fredericton	234
Quebec City	310
Winnipeg	130
Victoria	29

Part 2 Response Page (continued)

6. **Average Annual Snowfall**
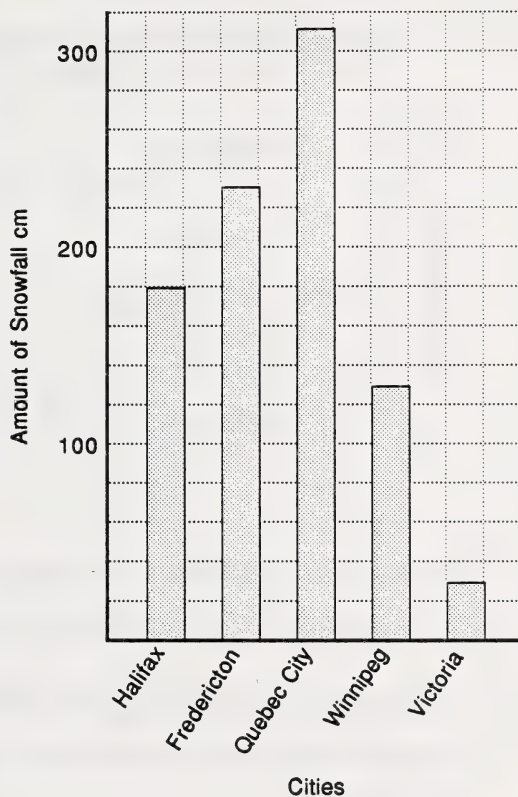
Part 2 (continued)

10   7. Use this line graph to answer the following questions.

Grocery Stores in Truro, Alberta
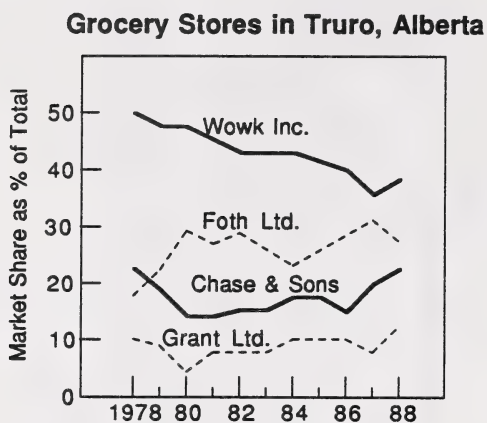
a. In what year was Wowk Inc.'s share of the market the highest?

b. In what year was the sale of Foth Ltd. the highest?

c. In what year was Chase and Sons' share of the market the lowest?

d. Give the shares (as % of the total) for the four categories in 1988

   (i)   Wowk Inc.
   (ii) Foth Ltd.
   (iii) Chase and Sons
   (iv) Grant Ltd.

Part 2 Response Page (continued)

7. a. 1978

    b. 1987

    c. 1980

    d. (i)   38

        (ii)   28

        (iii) 22

        (iv)   12
            Note
            38 + 28 + 22 + 12 = 100%

Part 2 (continued)

10

8. 'Go Anywhere — and Come Back,' a travel agency, is trying to put its sales figures on a line graph. The basic information is contained in the following table.

Month	Sales
January	$5 000
February	$4 000
March	$4 000
April	$10 000
May	$15 000
June	$20 000
July	$40 000
August	$30 000
September	$25 000
October	$6 000
November	$5 000
December	$10 000

On the graph paper, complete the line graph of this data.

Part 2 Response Page (continued)

8.

**Monthly Sales at "Go Anywhere & Come Back"
Travel Agency**
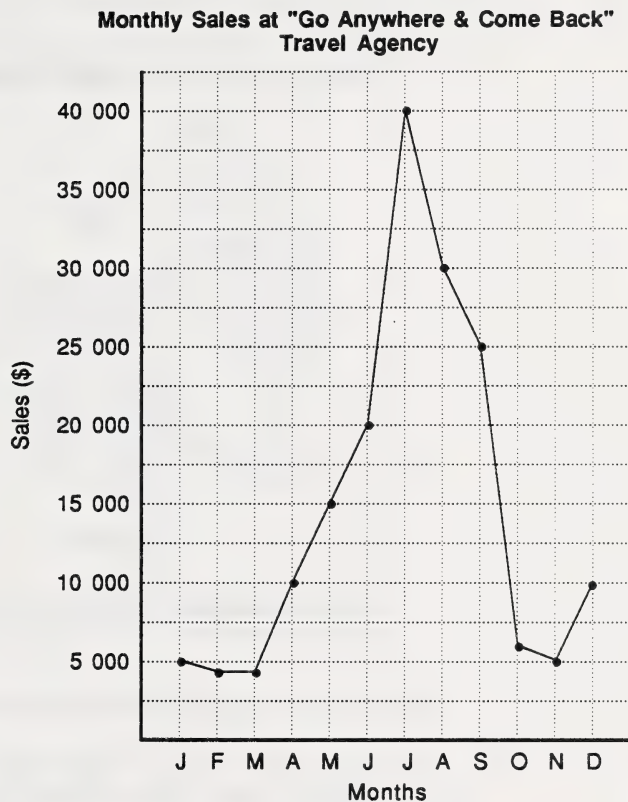
Part 2 (continued)

10

9. In a west coast community, a study was conducted to see how people earned their livings. The circle graph reflects the breakdown.

Analysis of Work in New Grimsby

Forestry
25%

Fishing
37%

Other
13%

Fish
processing
10%

Sales,
Services
&
Professional
10%

Mining
5%

Total Labour Force Employed = 20 000
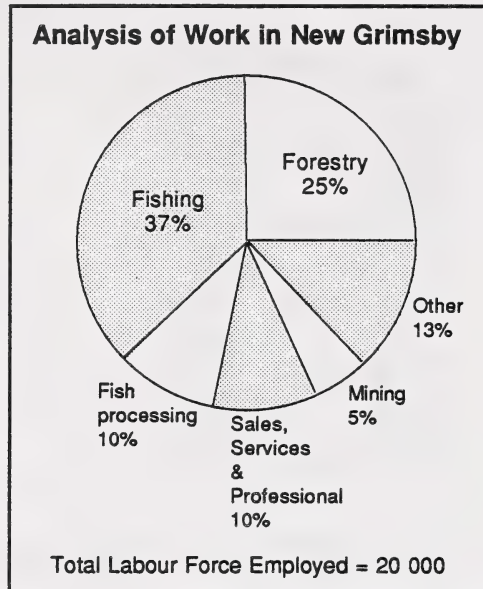
a. Identify the two largest sectors that employ people.

b. In the community there are dairy farms and there are some small gold extracting plants. How are these two activities classified in the above circle graph?

c. Give the actual number of people who work in these areas.

   (i)   forestry
   (ii) mining
   (iii) fishing

Part 2 Response Page (continued)

9. a. Fishing and forestry

    b. other

    c. (i)   5 000

        (ii)   1 000

        (iii) 7 400

Part 2 (continued)

10

10. United Universal Movers Incorporated is a transportation and moving business. It moves anything to anywhere. The company breaks down its income according to the means of transportation. The income it received in 1987 is displayed in the following table.

Income From	Income (in Canadian dollars)
Barges — Boats Rail Transportation Trucking Air-Transportation Other Means	$150 000 000 50 000 000 100 000 000 60 000 000 40 000 000
Total Income	$400 000 000

Construct a circle graph to display this information.

Part 2 Response Page (continued)

10.

Annual Income at United Universal Movers Inc. 1987

Barges and Boats

Rail

Trucking

Air

Other
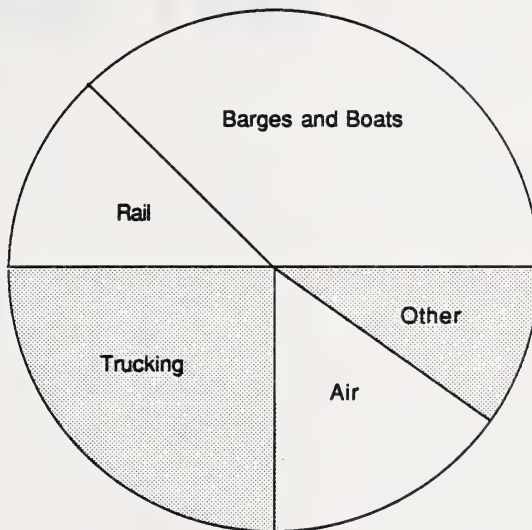
Total for Part 2 = _____ (maximum possible: 100 marks)

Final Test

There are two copies of the final test: the student's copy which is designed for photocopying and possible faxing and the teacher's copy which includes a marking guide.

Note:

The student's copy and the teacher's copy of this final test should be kept by the teacher. Students should not have access to this test until it is assigned in a supervised situation. The answers should be stored securely and retained by the teacher at all times.

MATHEMATICS 7

FINAL TEST

GENERAL INSTRUCTIONS

1. Time: **2 hours**

2. Total Marks: **100**

3. This test is to be completed independently under supervision without the use of any resource materials. A compass and straightedge will be needed. The use of a calculator, base 10 blocks and two-coloured counters is recommended.

4. Before you begin to write this test, read through the entire test quickly so you know what you are required to do. You have two hours to complete the test, so distribute your time accordingly.

5. The Mathematics 7 test consists of three parts:

   Part A - Multiple Choice

   Part B - Short Answers

   Part C - Problems

   As you do the questions in Part B and Part C, BE SURE TO SHOW ALL YOUR WORK. Answers alone are not enough to get full marks.

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PART A: MULTIPLE CHOICE

Suggested time: 40 minutes

Value: 40 marks (2 marks each)

Directions: Each of the following questions has four suggested answers, one of which is better than the others. Select the best answer, and indicate your choice by writing the letter in the blank on the Response Page.

1. Which is the value of 5^4?

   A. 20
   B. 25
   C. 125
   D. 625

2. Which is the value of $3 + 3 \times 5 - 4 \div 2$?

   A. 7
   B. 13
   C. 16
   D. 28

3. Which list of decimals is arranged from lowest to greatest?

   A. 0.2, 0.25, 0.89, 0.125, 0.875
   B. 0.2, 0.25, 0.125, 0.875, 0.89
   C. 0.125, 0.2, 0.25, 0.89, 0.875
   D. 0.125, 0.2, 0.25, 0.875, 0.89

4. Which is 43.75 rounded to the nearest tenth?

   A. 44
   B. 43.8
   C. 43.7
   D. 40

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PART A: RESPONSE PAGE

1. ___D___

2. ___A___

3. ___C___

4. ___B___

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5. Which list of fractions is arranged from lowest to greatest?

   A. $\frac{1}{6}$, $\frac{2}{5}$, $\frac{3}{2}$, $\frac{4}{3}$, $\frac{5}{4}$

   B. $\frac{3}{2}$, $\frac{4}{3}$, $\frac{5}{4}$, $\frac{2}{5}$, $\frac{1}{6}$

   C. $\frac{1}{6}$, $\frac{2}{5}$, $\frac{5}{4}$, $\frac{4}{3}$, $\frac{3}{2}$

   D. $\frac{2}{5}$, $\frac{1}{6}$, $\frac{3}{2}$, $\frac{4}{3}$, $\frac{5}{4}$

6. Which expression represents the phrase "Four less than three times Norman's height"?

   A. $4 - 3n$
   B. $3n - 4$
   C. $4n - 3$
   D. $3 - 4n$

7. Which equation represents the sentence "Three kilograms more than twice Ralph's mass results in 174 kg."

   A. $3 = 2m + 174$
   B. $3 + 2m = 174$
   C. $2m - 3 = 174$
   D. $3 = 174 - 2m$

8. Which equation is modeled?

   A. $b = 6$
   B. $3 + b = 2$
   C. $3b = 6$
   D. $\dfrac{b}{3} = 2$

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PART A: RESPONSE PAGE

5.   C

6.   B

7.   B

8.   C

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9. This tally chart was made by asking a class of Grade 7 students their ages. Which age group was least represented?

Age	Tally
11	IIII
12	IIII IIII I
13	IIII III
14	II

A. 11
B. 12
C. 13
D. 14

10. This table shows what part of North America coastline different countries have. Which type of graph would be best to display this information?

Country	Percent
Canada	73%
Costa Rica	1%
Mexico	8%
Nicaragua	1%
Panama	2%
United States	15%

A. circle graph
B. bar graph
C. line graph
D. pictograph

11. Which number sentence is modeled?

A. $(-1) + (+3) = +4$
B. $(-1) + (+3) = -4$
C. $(-1) + (+3) = +2$
D. $(-1) + (+3) = -2$

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PART A: RESPONSE PAGE

9. ___D___

10. ___A___

11. ___C___

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12. Which is the solution of $2x + 3 = 11$?

    A. 1
    B. 2
    C. 3
    D. 4

13. Which is the value of $3x - 5$ if $x = 2$?

    A. 1
    B. 7
    C. 11
    D. 21

14. Which is the value of $(-2) + (-5)$?

    A. -7
    B. -3
    C. $+3$
    D. $+10$

15. Which is the value of $(+2) + (-5)$?

    A. -7
    B. $+3$
    C. -3
    D. $+10$

16. Which of the following equations has more than one solution?

    A. $x - 3 = 5$
    B. $3x + 8 = 14$
    C. $x + y = 9$
    D. $\dfrac{x}{4} = 28$

17. 25% of the pies at the pantry sale were apple. If there were 32 pies, how many were apple?

    A. 25
    B. 8
    C. 10
    D. 1.2

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PART A: RESPONSE PAGE

12. ___D___

13. ___A___

14. ___A___

15. ___C___

16. ___C___

17. ___B___

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18. There are 16 books on the library shelf. 12 of the books are about sports. What percent of the books on the shelf are about sports?

    A. 12%
    B. 16%
    C. 60%
    D. 75%

19. Which has turn symmetry?

    A.

    B.

    C.

    D.

20. Which is equal to 200 cm?

    A. 2 km
    B. 0.2 km
    C. 0.02 km
    D. 0.002 km

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PART A: RESPONSE PAGE

18. ___D___

19. ___D___

20. ___B___

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PART B: SHORT ANSWERS

Suggested time: 50 minutes

Value: 36 marks (Values are in margin.)

Directions: When answering the following questions, show all necessary work and give complete answers. Use the space provided on the Response Page.

2   1. Describe what steps you would take to find an exact answer mentally for **two** of the following.

a. 12 + 54 + 30 + 28 + 16
b. 1212 − 198
c. 32 × 25

1   2. When you divide 12345 by 0 using a simple calculator, the display shows

```
E              0
```

Why?

1   3. Give the prime numbers in the first 20 whole numbers.

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PART B: RESPONSE PAGE

1. Answers may vary. Here are some examples.

    a. Students may regroup.

    $(12 + 28) + (54 + 16) + 30 = 140$

    b. Students may use attention method (add 2 to the minuend and add 2 to the subtrahend).

    $$\begin{array}{r} 1414 \\ -\ 200 \\ \hline 1214 \end{array}$$

    c. Students may use the distributive property.

    $30 \times 25 + 2 \times 25$

    $= 750 + 50$

    $= 800$

2. Division by zero is undefined.

3. 2, 3, 5, 7, 11, 13, 17, 19

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1   4. List all the factors of 52.

1   5. Give the prime factorization of 60.

1   6. Complete the sequence of key presses on a calculator that displays
        10, 15, 20 — multiples of 5.

2   7. Write a statement using the words "2 to 3" to describe each of these
        diagrams.

        a.

        b.

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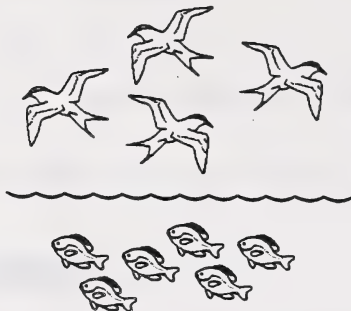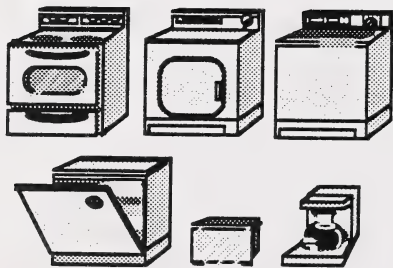
PART B: RESPONSE PAGE

4. 1, 2, 4, 13, 26, 52

5. $60 = 2 \times 2 \times 3 \times 5$

6.

Key Press	Display
5 + 5 =	10
+ 5 =	15
+ 5 =	20

OR

Key Press	Display
5 + 5 =	10
=	15
=	20

OR

Key Press	Display
2 × 5 =	10
3 × 5 =	15
4 × 5 =	20

OR

Key Press	Display
2 × 5 =	10
3 =	15
4 =	20

7. a. The ratio of birds to fish is 2 to 3.

   b. The ratio of major appliances to appliances is 2 to 3.

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4

8.

If represents 1 whole, what do the sums of the following represent? (Use simplest form.)

a.

c.

b.

d.

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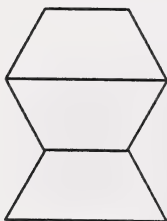
PART B: RESPONSE PAGE

8. a. $\frac{1}{6}$

   b. $\frac{1}{2}$

   c. $\frac{3}{4}$

   d. $\frac{7}{12}$

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2   9.

If represents 1 whole, what do the sums of the following represent? (Use simplest form.)

a. and

b. and

TEACHER'S COPY

PART B: RESPONSE PAGE

9. a. $\frac{1}{2} + \frac{2}{6}$

      $= \frac{3}{6} + \frac{2}{6}$

      $= \frac{5}{6}$
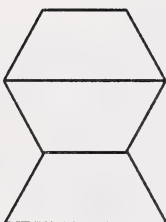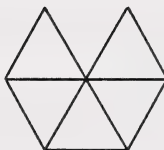
b. $\frac{3}{4} + \frac{5}{12}$

      $= \frac{9}{12} + \frac{5}{12}$

      $= \frac{14}{12}$

      $= 1\frac{2}{12}$

      $= 1\frac{1}{6}$
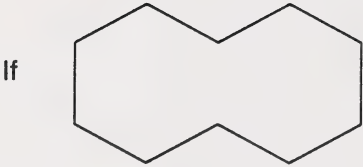
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2   10.

If represents 1 whole, what do the differences of the following represent? (Give answers in simplest form.)

a.   take away

b.   take away

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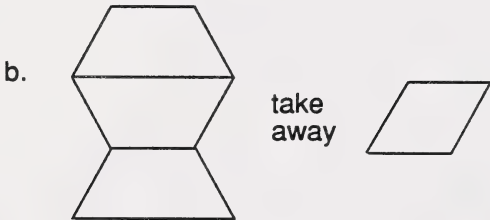
PART B: RESPONSE PAGE

10. a. $\frac{2}{6} - \frac{1}{4}$

   $= \frac{4}{12} - \frac{3}{12}$

   $= \frac{1}{12}$

b. $\frac{3}{4} - \frac{1}{6}$

   $= \frac{9}{12} - \frac{2}{12}$

   $= \frac{7}{12}$

TEACHER'S COPY

3   11.

If represents 1 whole, what do the following represent? (Give answers in simplest form.)

a. 3 groups of

b. $\frac{1}{3}$ of

c. $\frac{1}{2}$ of

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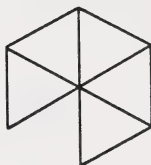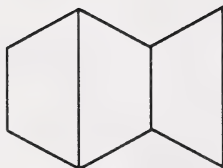
PART B: RESPONSE PAGE

11. a. $3 \times \frac{5}{12}$

       $= \frac{15}{12}$

       $= 1\frac{3}{12}$

       $= 1\frac{1}{4}$

   b. $\frac{1}{3} \times \frac{3}{4}$

       $= \frac{3}{12}$

       $= \frac{1}{4}$

   c. $\frac{1}{2} \times \frac{1}{2}$

       $= \frac{1}{4}$
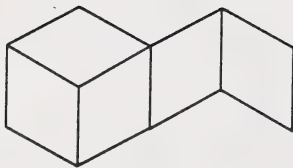
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4   12.

If   represent $\frac{5}{6}$, complete the following.

a. How many groups of $\frac{1}{6}$ are there in $\frac{5}{6}$?

b. How many groups of $\frac{1}{12}$ are there in $\frac{5}{6}$?

c. How many groups of $\frac{1}{2}$ are there in $\frac{5}{6}$?

d. How many groups of $\frac{11}{12}$ are there in $\frac{5}{6}$?

TEACHER'S COPY

PART B: RESPONSE PAGE

12. a. $\frac{5}{6} \div \frac{1}{6} = 5$

 b. $\frac{5}{6} \div \frac{1}{12} = 10$

 c. $\frac{5}{6} \div \frac{1}{2} = 1\frac{2}{3}$

 d. $\frac{5}{6} \div \frac{11}{12} = \frac{10}{11}$

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2   13. Write an equivalent ratio for each of the following.

         a. 15 motorcycles to 45 cars
         b. 10 poodles to 25 dogs

2   14. a. Write a proportion about this situation: One recipe has 3 cups of sugar to 6 cups of flour. A second recipe has 2 cups of flour to ____ cups of sugar.

         b. What is the number of cups of sugar in the second recipe?

2   15. 8% of the students were absent. Restate this sentence using

         a. a fraction (Give simplest form.)
         b. a decimal

2   16. Janice's age is $\frac{4}{5}$ of her sister's age. Restate this sentence using

         a. a decimal
         b. a percent

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PART B: RESPONSE PAGE

13. Answers may vary. Here are a few examples.

    a. 5 motorcycles to 15 cars

    or 3 motorcycles to 9 cars

    or 1 motorcycle to 3 cars

    b. 2 poodles to 5 dogs

    or 20 poodles to 50 dogs

14. a. $\frac{3}{6} = \frac{\square}{2}$ $\left\{ \frac{sugar}{flour} \right\}$ or $\frac{6}{3} = \frac{2}{\square}$ $\left\{ \frac{flour}{sugar} \right\}$

    b. $\frac{3}{6} = \frac{\boxed{1}}{2}$ ($\div 3$)

    The second recipe has 1 cup of sugar.

15. a. $\frac{2}{25}$ of the students were absent.

    b. 0.08 of the students were absent.

16. a. Janice's age is 0.8 of her sister's age.

    b. Janice's age is 80% of her sister's age.

TEACHER'S COPY

4   17. Using dot paper, draw

    a. a congruent figure to the given figure.
    b. a similar figure to the given figure.

TEACHER'S COPY
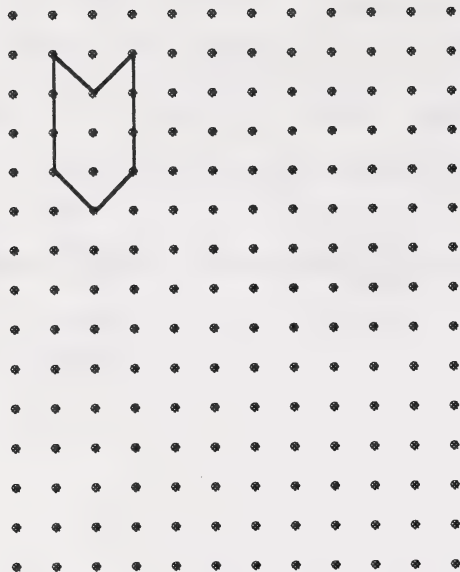
PART B: RESPONSE PAGE

17. a. Figures must be the same size and shape as the original. Figures may be turned. Here is an example.
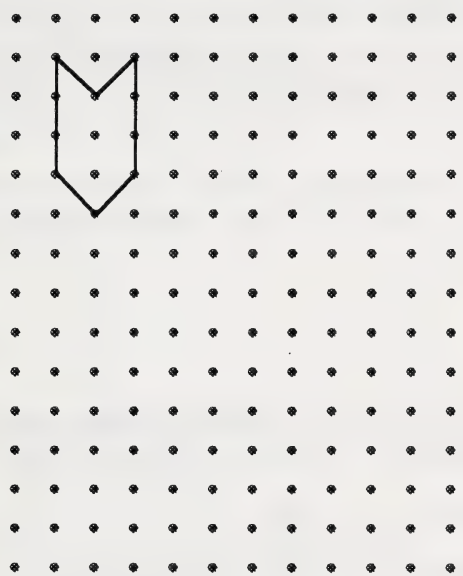
    b. Answers will vary. However, figures must be the same shape as the original but a different size. Figures may be turned. Here is an example.

TEACHER'S COPY

PART C - PROBLEMS

Suggested time: 30 minutes

Value: 24 marks (3 each)

Directions: When answering the following questions, show all necessary work and give statement answers. Use space provided on the Response Page.

1. If all the digits in the following number are different and if the number is divisible by 2, 3, and 5, fill in the missing digits.

   ☐ 1 7 ◇

2. Greenland is about 20% of the size of Canada. Denmark is about 2% of the size of Greenland. Canada is about 9 975 800 km².

   a. Denmark is about _____ km².

   b. If 85% of Greenland is covered with ice, about _____ km² is **not** covered with ice.

TEACHER'S COPY

PART C: RESPONSE PAGE

It is recommended that you give marks for understanding the problem, for developing and carrying out the plan, and for looking back. Students should answer in a sentence the question asked and explain how they arrived at their answers.

1. | 4 | 1 7 ⟨0⟩

The number is 4170.

2. a.   20% of 9 975 800
        = 0.2 × 9 975 800
        = 1 995 160.0 km²

   Greenland is about 1 995 160 km².

        2% of 1 995 160
        0.02 × 1 995 160
      = 39 903.20 km²

   Denmark is about 39 903.2 km².

   b. 100% − 85% = 15%

   15% of Greenland is not covered with ice.

        15% of 1 995 160
      = 0.15 × 1 995 160
      = 299 274 km²

   About 299 274 km² of Greenland is not covered with ice.

TEACHER'S COPY

3. The average of 8 numbers is 64. Three of the numbers are 74, 58 and 50. What is the average of the other 5 numbers?

4. Replace the missing digits so that the number of hundreds plus the number of thousands is 13, the number of hundreds is twice the number of tens, and the number of ones is twice the number of hundreds.

◯ ◇ ☐ 6

PART C: RESPONSE PAGE

3. Different methods may be used.

$$74 + 58 + 50 + f = 512$$
$$182 + f = 512$$
$$f = 330$$

The average of the other 5 numbers is $\frac{330}{5} = 66$.

4. Different methods may be used. Here are some examples.

$\square + 9 = 13$

So $\square = 4$

$\square = 2 \diamondsuit$

If $\square = 4$, then $\diamondsuit = 2$

$\bigcirc = 2 \square$

If $\square = 4$, then $\bigcirc = 8$

The number is 9428.

TEACHER'S COPY

5. Using a compass, construct this design. (Make the design larger.)
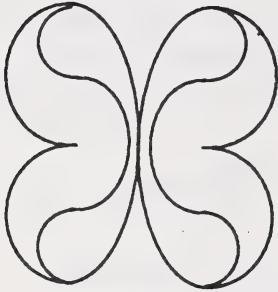
PART C: RESPONSE PAGE

5. Students' approaches may vary. Some may choose to draw one side and then copy the reflection. It is recommended that you mark according to problem-solving ideas, not just the completed design.
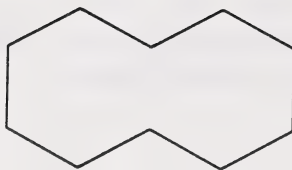
TEACHER'S COPY

6.

If represents 1, what does this represent?
(Use simplest form.)
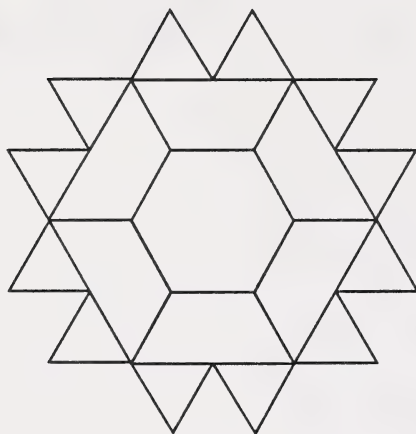
PART C: RESPONSE PAGE

6. $\frac{12}{12} + \frac{6}{4} + \frac{1}{2}$

   $= \ 1 \ + \ 1\frac{1}{2} \ + \ \frac{1}{2}$

   $= \ 3$

This figure represents 3.

MATHEMATICS 7

FINAL TEST

GENERAL INSTRUCTIONS

1. Time: **2 hours**

2. Total Marks: **100**

3. This test is to be completed independently under supervision without the use of any resource materials. A compass and straightedge will be needed. The use of a calculator, base 10 blocks and two-coloured counters is recommended.

4. Before you begin to write this test, read through the entire test quickly so you know what you are required to do. You have two hours to complete the test, so distribute your time accordingly.

5. The Mathematics 7 test consists of three parts:

   Part A - Multiple Choice

   Part B - Short Answers

   Part C - Problems

   As you do the questions in Part B and Part C, BE SURE TO SHOW ALL YOUR WORK. Answers alone are not enough to get full marks.

PART A: MULTIPLE CHOICE

Suggested time: 40 minutes

Value: 40 marks (2 marks each)

Directions: Each of the following questions has four suggested answers, one of which is better than the others. Select the best answer, and indicate your choice by writing the letter in the blank on the Response Page.

1. Which is the value of 5^4?

    A. 20
    B. 25
    C. 125
    D. 625

2. Which is the value of $3 + 3 \times 5 - 4 \div 2$?

    A. 7
    B. 13
    C. 16
    D. 28

3. Which list of decimals is arranged from lowest to greatest?

    A. 0.2, 0.25, 0.89, 0.125, 0.875
    B. 0.2, 0.25, 0.125, 0.875, 0.89
    C. 0.125, 0.2, 0.25, 0.89, 0.875
    D. 0.125, 0.2, 0.25, 0.875, 0.89

4. Which is 43.75 rounded to the nearest tenth?

    A. 44
    B. 43.8
    C. 43.7
    D. 40

PART A: RESPONSE PAGE

1. _____

2. _____

3. _____

4. _____

Name of Student _____   Student I.D.# _____

Name of School _____   Date _____

5. Which list of fractions is arranged from lowest to greatest?

A. $\frac{1}{6}$, $\frac{2}{5}$, $\frac{3}{2}$, $\frac{4}{3}$, $\frac{5}{4}$

B. $\frac{3}{2}$, $\frac{4}{3}$, $\frac{5}{4}$, $\frac{2}{5}$, $\frac{1}{6}$

C. $\frac{1}{6}$, $\frac{2}{5}$, $\frac{5}{4}$, $\frac{4}{3}$, $\frac{3}{2}$

D. $\frac{2}{5}$, $\frac{1}{6}$, $\frac{3}{2}$, $\frac{4}{3}$, $\frac{5}{4}$

6. Which expression represents the phrase "Four less than three times Norman's height"?

A. $4 - 3n$
B. $3n - 4$
C. $4n - 3$
D. $3 - 4n$

7. Which equation represents the sentence "Three kilograms more than twice Ralph's mass results in 174 kg."

A. $3 = 2m + 174$
B. $3 + 2m = 174$
C. $2m - 3 = 174$
D. $3 = 174 - 2m$

8. Which equation is modeled?

A. $b = 6$
B. $3 + b = 2$
C. $3b = 6$
D. $\dfrac{b}{3} = 2$

PART A: RESPONSE PAGE

5. _____

6. _____

7. _____

8. _____

Name of Student _____ Student I.D.# _____

Name of School _____ Date _____

9. This tally chart was made by asking a class of Grade 7 students their ages. Which age group was least represented?

Age	Tally
11	IIII
12	ЖĦ ЖĦ I
13	ЖĦ III
14	II

A. 11
B. 12
C. 13
D. 14

10. This table shows what part of North America coastline different countries have. Which type of graph would be best to display this information?

Country	Percent
Canada	73%
Costa Rica	1%
Mexico	8%
Nicaragua	1%
Panama	2%
United States	15%

A. circle graph
B. bar graph
C. line graph
D. pictograph

11. Which number sentence is modeled?

A. $(-1) + (+3) = +4$
B. $(-1) + (+3) = -4$
C. $(-1) + (+3) = +2$
D. $(-1) + (+3) = -2$

PART A: RESPONSE PAGE

9. _____

10. _____

11. _____

Name of Student _____ Student I.D.# _____

Name of School _____ Date _____

12. Which is the solution of $2x + 3 = 11$?

   A. 1
   B. 2
   C. 3
   D. 4

13. Which is the value of $3x - 5$ if $x = 2$?

   A. 1
   B. 7
   C. 11
   D. 21

14. Which is the value of $(-2) + (-5)$?

   A. -7
   B. -3
   C. $+3$
   D. $+10$

15. Which is the value of $(+2) + (-5)$?

   A. -7
   B. $+3$
   C. -3
   D. $+10$

16. Which of the following equations has more than one solution?

   A. $x - 3 = 5$
   B. $3x + 8 = 14$
   C. $x + y = 9$
   D. $\frac{x}{4} = 28$

17. 25% of the pies at the pantry sale were apple. If there were 32 pies, how many were apple?

   A. 25
   B. 8
   C. 10
   D. 1.2

PART A: RESPONSE PAGE

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

Name of Student _____ Student I.D.# _____

Name of School _____ Date _____

18. There are 16 books on the library shelf. 12 of the books are about sports. What percent of the books on the shelf are about sports?

    A. 12%
    B. 16%
    C. 60%
    D. 75%

19. Which has turn symmetry?

    A.

    B.

    C.

    D.

20. Which is equal to 200 cm?

    A. 2 km
    B. 0.2 km
    C. 0.02 km
    D. 0.002 km

PART A: RESPONSE PAGE

18. _____

19. _____

20. _____

Total for Part A = _____ (maximum possible: 40 marks)

Name of Student _____   Student I.D.# _____

Name of School _____   Date _____

PART B: SHORT ANSWERS

Suggested time: 50 minutes

Value: 36 marks (Values are in margin.)

Directions: When answering the following questions, show all necessary work and give complete answers. Use the space provided on the Response Page.

2   1. Describe what steps you would take to find an exact answer mentally for **two** of the following.

        a. 12 + 54 + 30 + 28 + 16
        b. 1212 − 198
        c. 32 × 25

1   2. When you divide 12345 by 0 using a simple calculator, the display shows

        `E                    0`

        Why?

1   3. Give the prime numbers in the first 20 whole numbers.

PART B: RESPONSE PAGE

1.

   a.

   b.

   c.

2.

3.

Name of Student _____   Student I.D.# _____

Name of School _____   Date _____

1   4. List all the factors of 52.

1   5. Give the prime factorization of 60.

1   6. Complete the sequence of key presses on a calculator that displays
          10, 15, 20 — multiples of 5.

2   7. Write a statement using the words "2 to 3" to describe each of these
          diagrams.

       a.
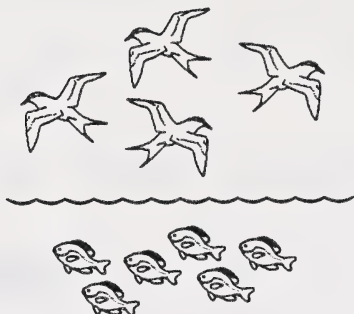
       b.
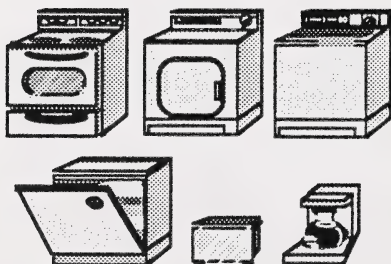
PART B: RESPONSE PAGE

4.

5.

6.

Key Press	Display
	10
	15
	20

7. a.

   b.

4   8.

If represents 1 whole, what do the sums of the following represent? (Use simplest form.)

a.

c.

b.

d.

PART B: RESPONSE PAGE

8. a.

   b.

   c.

   d.

Name of Student _____ Student I.D.# _____

Name of School _____ Date _____

2   9.

If represents 1 whole, what do the sums of the following represent? (Use simplest form.)

a.
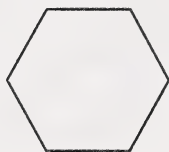
 and

b.

 and

PART B: RESPONSE PAGE

9. a.

   b.

2   10.

If represents 1 whole, what do the differences of the following represent? (Give answers in simplest form.)

a.
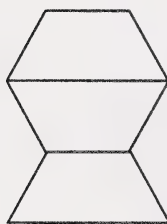
  take away

b.
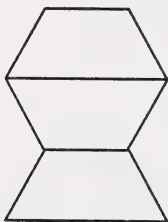
  take away

PART B: RESPONSE PAGE

10. a.

    b.

Name of Student _____   Student I.D.# _____

Name of School _____   Date _____

3   11.

If represents 1 whole, what do the following represent? (Give answers in simplest form.)
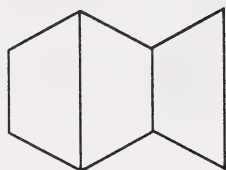
a. 3 groups of

b. $\frac{1}{3}$ of
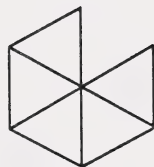
c. $\frac{1}{2}$ of
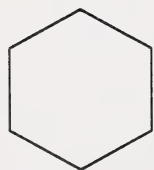
PART B: RESPONSE PAGE

11. a.

    b.

    c.

Name of Student _____   Student I.D.# _____

Name of School _____   Date _____

4   12.
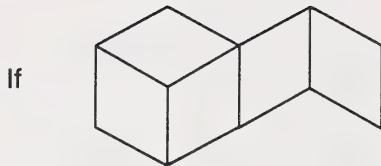
If represent $\frac{5}{6}$, complete the following.

a. How many groups of $\frac{1}{6}$ are there in $\frac{5}{6}$?

b. How many groups of $\frac{1}{12}$ are there in $\frac{5}{6}$?

c. How many groups of $\frac{1}{2}$ are there in $\frac{5}{6}$?

d. How many groups of $\frac{11}{12}$ are there in $\frac{5}{6}$?

PART B: RESPONSE PAGE

12. a.

    b.

    c.

    d.

Name of Student _____   Student I.D.# _____

Name of School _____   Date _____

2 13. Write an equivalent ratio for each of the following.

      a. 15 motorcycles to 45 cars
      b. 10 poodles to 25 dogs

2 14. a. Write a proportion about this situation: One recipe has 3 cups of sugar to 6 cups of flour. A second recipe has 2 cups of flour to ____ cups of sugar.

      b. What is the number of cups of sugar in the second recipe?

2 15. 8% of the students were absent. Restate this sentence using

      a. a fraction (Give simplest form.)
      b. a decimal

2 16. Janice's age is $\frac{4}{5}$ of her sister's age. Restate this sentence using

      a. a decimal
      b. a percent

PART B: RESPONSE PAGE

13. a.

    b.

14. a.

    b.

15. a.

    b.

16. a.

    b.

Name of Student _____   Student I.D.# _____

Name of School _____   Date _____

4

17. Using dot paper, draw

    a. a congruent figure to the given figure.
    b. a similar figure to the given figure.

PART B: RESPONSE PAGE

17. a.

b.

Total for Part B = _____ (maximum possible: 42 marks)
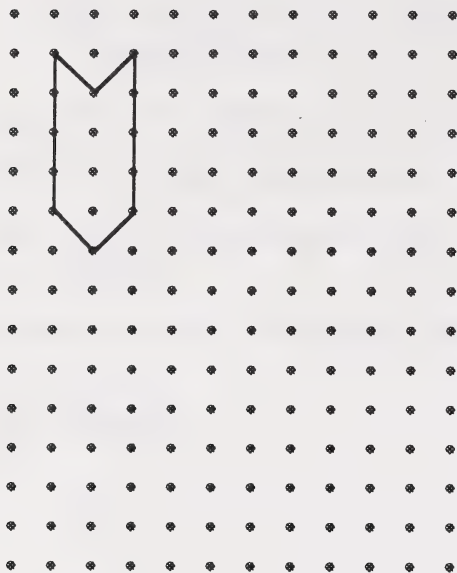
Name of Student _____ Student I.D.# _____

Name of School _____ Date _____

PART C - PROBLEMS

Suggested time: 30 minutes

Value: 24 marks (3 each)

Directions: When answering the following questions, show all necessary work and give statement answers. Use space provided on the Response Page.

1. If all the digits in the following number are different and if the number is divisible by 2, 3, and 5, fill in the missing digits.

$$\square \quad 1 \quad 7 \quad \diamondsuit$$

2. Greenland is about 20% of the size of Canada. Denmark is about 2% of the size of Greenland. Canada is about 9 975 800 km².

   a. Denmark is about _____ km².

   b. If 85% of Greenland is covered with ice, about _____ km² is **not** covered with ice.

PART C: RESPONSE PAGE

1.

2. a.

   b.

Name of Student _____ Student I.D.# _____

Name of School _____ Date _____

3. The average of 8 numbers is 64. Three of the numbers are 74, 58 and 50. What is the average of the other 5 numbers?

4. Replace the missing digits so that the number of hundreds plus the number of thousands is 13, the number of hundreds is twice the number of tens, and the number of ones is twice the number of hundreds.

9 □ ◇ ○

PART C: RESPONSE PAGE

3.

4.

Name of Student _____   Student I.D.# _____

Name of School _____   Date _____

5. Using a compass, construct this design. (Make the design larger.)
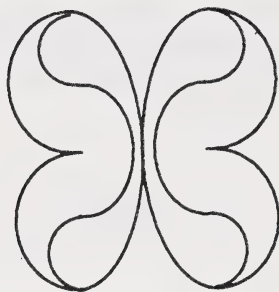
PART C: RESPONSE PAGE

5.

Name of Student _____ Student I.D.# _____

Name of School _____ Date _____

6.
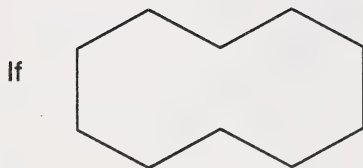
If represents 1, what does this represent? (Use simplest form.)
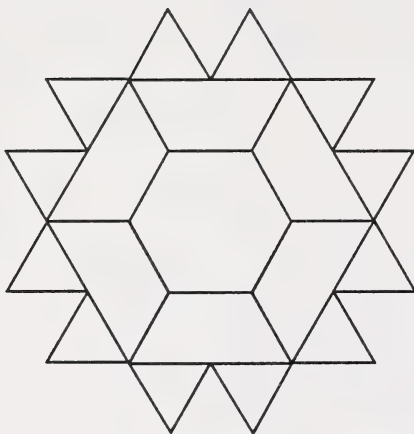
PART C: RESPONSE PAGE

6.

Total for Part C = _____ (maximum possible: 18 marks)

Name of Student _____   Student I.D.# _____

Name of School _____   Date _____

This is a course designed in a new distance-learning format, so we are interested in your responses. Your constructive comments will be greatly appreciated so that a future revision may incorporate any necessary improvements.

TEACHER QUESTIONNAIRE FOR FOR MATHEMATICS 7

Teacher's Name _____   Teacher's area of expertise _____

School Name _____   Date _____

Design

1. The modules follow a definite systematic design. Did you find it easy to follow?

    ❏ Yes   ❏ No   If no, explain.

    _____

    _____

2. Did your observations reveal that the students found the design easy to follow?

    ❏ Yes   ❏ No   If no, explain.

    _____

    _____

3. Did you find the Learning Facilitator's Manuals helpful?

    ❏ Yes   ❏ No   If no, explain.

    _____

    _____

4. Part of the design involves stating the objectives in student terms. Do you feel this helped the students understand what they were going to learn?

    ❏ Yes   ❏ No   If no, explain.

    _____

    _____

5. The questions in the Module Booklet are to help clarify and reinforce the instructional materials. The answers were placed in the Learning Facilitator's Manuals. Did this design prove helpful?

   ❑ Yes ❑ No   If no, explain.

   _____

   _____

6. Did the Extra Practice (remediation) and Concluding Activities (enrichment) prove to be helpful?

   ❑ Yes ❑ No   If no, explain.

   _____

   _____

7. Were students motivated to try these Extra Practice and Concluding Activities?

   ❑ Yes ❑ No   If no, give details.

   _____

   _____

8. Companion audio programs are included in the course. Did your students find them helpful?

   ❑ Yes ❑ No   Comment on the lines below.

   _____

   _____

9. Suggestions for computer and video activities are included in the course. Were your students able to use these activities?

   ❑ Yes ❑ No   Comment on the lines below.

   _____

   _____

10. The Learning Management Systems (LMS) is available for this course. Were you able to use this system?

   ❏ Yes   ❏ No   Comment on the lines below.

   _____

   _____

11. Were the assignments clear?

   ❏ Yes   ❏ No   If no, give details.

   _____

   _____

12. Were the assignments appropriate?

   ❏ Yes   ❏ No   If no, give details.

   _____

   _____

13. Did you fax assignments?

   ❏ Yes   ❏ No

14. If you did fax, did you get satisfactory results from using this procedure?

   ❏ Yes   ❏ No   If no, give details.

   _____

   _____

   _____

Instruction

1. Did you find the instruction clear?

   ❏ Yes   ❏ No   If no, give details.

   _____

   _____

2. Did your observations reveal that the students found the instruction interesting?

   ❏ Yes   ❏ No   If no, give details.

   _____

   _____

3. Did you find the instruction adequate?

   ❏ Yes   ❏ No   If no, give details.

   _____

   _____

4. Was the reading level appropriate?

   ❏ Yes   ❏ No   If no, give details.

   _____

   _____

5. Was the work load adequate?

   ❏ Yes   ❏ No   If no, give details.

   _____

   _____

6. Was the content accurate and current?

☐ Yes   ☐ No   If no, give details.

_____

_____

7. Did the content flow consistently and logically?

☐ Yes   ☐ No   If no, give details.

_____

_____

8. Was the transition between booklets smooth?

☐ Yes   ☐ No   If no, give details.

_____

_____

9. Was the transition between print and media smooth?

☐ Yes   ☐ No   If no, give details.

_____

_____

Additional Comments

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

When you have completed this questionnaire, please mail it to the following address.

Design Department
Alberta Distance Learning Centre
Box 4000
Barrhead, Alberta
T0G 2P0
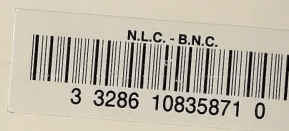
This booklet cannot be purchased separately; the Learning Facilitator's
Manual for Mathematics 7 is available only as a complete set.